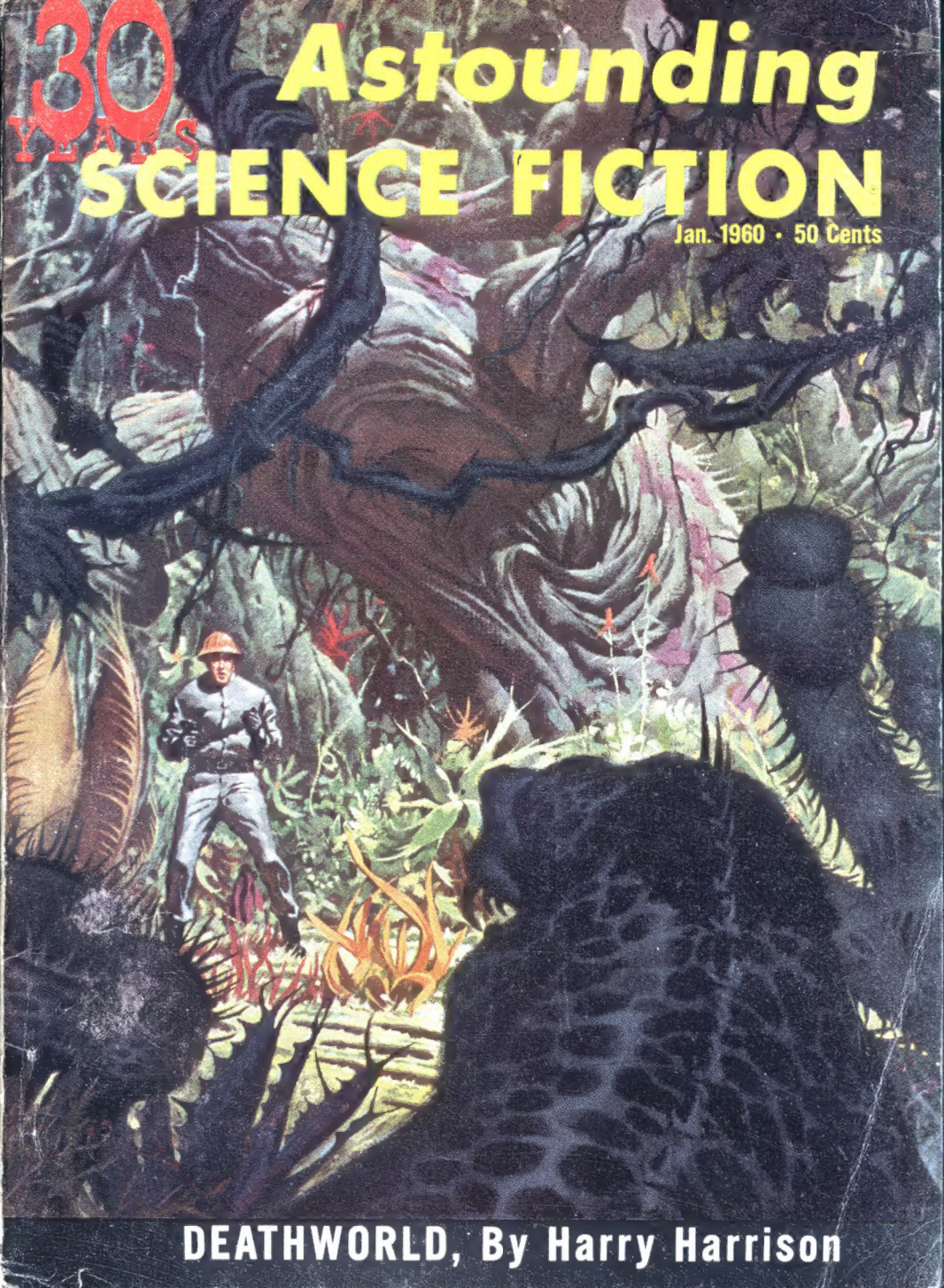
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SCIENCE FICTION
Jan. 1960 · 50 Cents
DEATHWORLD, By Harry Harrison

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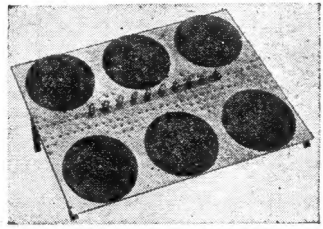

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TEXT PREPARED BY MIT SPECIALIST

Dr. Claude Shannon, known to the readers of "ASTOUNDING" for his invention of the electronic mouse, that runs a maze, learning as it goes, formerly a research mathematician for Bell Telephone Laboratories is now a research associate at MIT. His books include publications on Communication theory and the recent volume "Automat Studies" on the theory of robot construction. He has prepared a paper entitled "A Symbolic Analysis of Relay and Switching Circuits" which is available to purchasers of the **GENIAC.** Covering the basic theory necessary for advanced circuit design it vastly extends the range of our kit.

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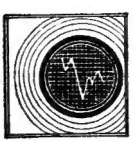

UR present cultural pattern is dominated by the concepts of conformity, togetherness, hyperdemocracy, and a general nitwitted "everybody's equal to everybody" philosophy.

In the evolution of organic life, a billion or two years ago, there was a real, honest-to-God egalitarian organization of individuals. We call them slime-molds; every cell was equal to every other cell. They continue to exist, of course, in out-of-the-way places, under damp and rotting logs, and the like. But they do not appear to have achieved any notable accomplishment.

However, in the kind of culture we have now, it is antisocial to claim superiority, and an open invitation to punishment to demonstrate superiority—or deviation, for that matter.

Studying the researches and experiments in psi phenomena, some highly interesting patterns emerge in this connection. It's a mechanism I've been calling "the diversion of responsibility."

Those pipe-locators work for about ninety per cent of all people who try them; the rods swing when the operator gets over the sought-for pipe. But the individual does not know where the pipe is; he says "the rods told me."

The simply demonstrated fact is that he caused the rods to swing at

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that point by subtle, almost indetectable movement of his hands. Actually, since it's obvious that the hands of a man walking across a field are constantly jolting, tipping, swinging and bobbing, what the operator does can not be called "moving his hands," since he's doing that anyway. What he actually does is displace the center-of-motion about which his hands are rocking, jolting and twisting anyway. The diaphragm in an aneroid barometer might be said to move "because the trapped air moves," but that's not very accurate. The air *is* trapped; it can't move either in or out of the sealed chamber. But the dynamic movement of the molecules goes on constantly, balancing the movement of the outside air. The surface-of-balance moves; the air doesn't.

In much the same way, the pipe-locator's operator moves the center-of-oscillation of his hands, rather than "moving his hands."

This makes it a little difficult to prove that *he* was the source of information—that *he* used a nonconforming ability.

About forty to fifty years ago, table-tipping was one of the more popular indoor sports. Almost any group of four to six people could gather around a small table, place their hands on it, usually in a slightly darkened room, and *wish* the table to rise . . . and lo, the table would rise a few inches, uncertainly, fumblingly, and hence tipsily.

Who made it rise? "Well, *I* didn't—*they* did!"

Again, responsibility could be diverted.

Dr. Rhine's tests of ESP using Zener cards is something very different; the responsible individual is directly, specifically determined. *He* did it.

Most individuals get pretty lousy scores, too.

Be it noted; it makes not the slightest difference how solidly, thoroughly, sincerely, and even desperately the individual consciously wants to make a high score. A claustrophobe may be frantically anxious to ride up two floors in an elevator; someone has promised him fifty thousand dollars if he does it, say. He sincerely, honestly, intensely wants to get in that elevator. But he doesn't do it.

Among the very few individuals on record as having and publicly displaying psi talents were Eusapia Palladino and Edgar Cayce. Palladino had the motor talents of levitation and telekinesis; Cayce had the sensory psi talent of clairvoyance, and, apparently, a peculiar and specialized form of telepathy.

Eusapia Palladino was carefully studied by Professor Lombroso, the foremost clinical psychologist of the period. She was professionally tested, and found to be a moron.

Edgar Cayce, judging from the recorded facts of his life-history, had a tremendous psi talent, but was definitely "stupid" in the highly technical sense of "one who does not learn from experience." Cayce was a moderately successful professional

photographer; on several occasions during his life he set up shop as a professional photographer, let his psi talent lie fallow, and made a reasonably good living for himself and his family. Each time he went into the psi-application business, however, his photography business died, and he and his family went broke. Not that he was incompetent at psi—simply that he was harassed so heavily that he was forced to lose by his efforts.

The society no longer burns witches at the stake, of course—we no longer act on the ancient order "Thou shalt not suffer a witch to live!" We've modified it: "Thou shalt not suffer a witch to make a living."

Cayce, as I said, was, in the strict technical sense, "stupid." He didn't learn from experience—but he certainly conducted a sufficiently extensive and persistent series of experiments to allow anyone else studying the thing to see the lesson fairly clearly. Psi talented individuals are punished until they quit displaying that objectionable superiority.

Palladino, of course, was an out-and-out moron. She didn't learn much either; she kept on trying to make a living by use of psi talents.

Are you stupid? Are you a moron? Or have you got sense enough to most carefully refrain from doing anything that will call down the punishment on yourself? Who's going to stick his neck out in public? Who's going to stand up and loudly claim, "I did it!" under the circumstances actually extant in this culture?

But table-tipping, now . . . "You can't say *I* did it!" Or pipe-locators . . . "The rods did it! I didn't move my hands!"

I suspect one of Dr. Rhine's great difficulties is that he's seeking to find psi-talented individuals. He hasn't, as yet, stumbled across any psi-talented morons who both have the high ability and have the required low level of intelligence, or learning ability to display their talent publicly.

Incidentally, if he did, history indicates that Dr. Rhine would immediately become the target of a heavy, all-out campaign of harassment and suppression. Vide the case of Sir William Crooks and D. D. Home. And the case of the major scientists who studied Eusapia Palladino . . . and, somewhat like Galileo, were forced by their learned peers to recant and/or shut up, at least.

The point of this discussion is quite simple: suppose we deliberately refrain from trying to find *psi-talented individuals,* and start trying to find out the facts of *psi itself?*

Suppose we simply go back to table-tipping experiments, and similar group-operated systems, wherein the individual is protected from attack because "You can't say *I* did it!" and study *psi, not psi-talented individuals?* Set up experiments deliberately designed in such a fashion that we can say, afterwards, "We don't know who is responsible for what happened, and we can't find out—but *we know what happened!*"

It comes down to this simple ques-

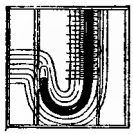
(*Continued on page* 177)

DEATHWORLD

BY HARRY HARRISON

First of Three Parts. Some planet in the galaxy must—by definition —be the toughest, meanest, nastiest of all. If Pyrrus wasn't it . . . it was an awfully good approximation!

Illustrated by van Dongen



ASON dinALT sprawled in soft luxury on the couch, a large frosty stein held limply in one hand. His other hand rested casually on a pillow. The gun behind the pillow was within easy reach of his fingers. In his line of work he never took chances.

It was all highly suspicious. Jason didn't know a soul on this planet. Yet the card sent by service tube from the hotel desk had read; *Kerk Pyrrus would like to see Jason dinAlt.* Blunt and to the point. He signaled the desk to send the man up, then lowered his fingers a bit until they brushed the gun butt. The door slid open and his visitor stepped through.

A retired wrestler. That was Jason's first thought. Kerk Pyrrus was a gray-haired rock of a man. His body seemingly chiseled out of flat slabs of muscle. Then Jason saw the gun strapped to the inside of the other man's forearm, and he let his fingers drop casually behind the pillow.

"I'd appreciate it," Jason said, "if you'd take off your gun while you're in here." The other man stopped and scowled down at the gun as if he was seeing it for the first time.

"No, I never take it off." He seemed mildly annoyed by the suggestion.

Jason had his fingers on his own gun when he said, "I'm afraid I'll have to insist. I always feel a little uncomfortable around people who wear guns." He kept talking to distract attention while he pulled out his gun. Fast and smooth.

He could have been moving in slow motion for all the difference it made. Kerk Pyrrus stood rock still while the gun came out, while it swung in his direction. Not until the very last instant did he act. When he did, the motion wasn't visible. First his gun was in the arm holster—then it was aimed between Jason's eyes. It was an ugly, heavy weapon with a pitted front orifice that showed plenty of use.

And Jason knew if he swung his own weapon up a fraction of an inch more he would be dead. He dropped his arm carefully and Kerk flipped his own gun back in the holster with the same ease he had drawn it.

"Now," the stranger said, "if we're through playing, let's get down to business. I have a proposition for you."

Jason downed a large mouthful from the mug and bridled his temper. He was fast with a gun—his life had depended on it more than once—and this was the first time he had been outdrawn. It was the offhand, unimportant manner it had been done that irritated him.

"I'm not prepared to do business," he said acidly. "I've come to Cassylia for a vacation, get away from work."

"Let's not fool each other, dinAlt," Kerk said impatiently. "You've never worked at an honest job in your entire life. You're a professional gambler and that's why I'm here to see you."

Jason forced down his anger and threw the gun to the other end of the couch so he wouldn't be tempted to

commit suicide. He *had* hoped no one knew him on Cassylia and was looking forward to a big kill at the Casino. He would worry about that later. This weight-lifter type seemed to know all the answers. Let him plot the course for a while and see where it led.

"All right, what do you want."

Kerk dropped into a chair that creaked ominously under his weight, and dug an envelope out of one pocket. He flipped through it quickly and dropped a handful of gleaming Galactic Exchange notes onto the table. Jason glanced at them—then sat up suddenly.

"What are they—forgeries?" he asked, holding one up to the light.

"They're real enough," Kerk told him, "I picked them up at the bank. Exactly twenty-seven bills—or twenty-seven million credits. I want you to use them as a bankroll when you go to the Casino tonight. Gamble with them and win."

They looked real enough—and they could be checked. Jason fingered them thoughtfully while he examined the other man.

"I don't know what you have in mind," he said. "But you realize I can't make any guarantees. I gamble —but I don't always win . . ."

"You gamble—and you win when you want to," Kerk said grimly. "We looked into that quite carefully before I came to you."

"If you mean to say that I cheat—" Carefully, Jason grabbed his temper again and held it down. There was no future in getting annoyed.

Kerk continued in the same level voice, ignoring Jason's growing anger. "Maybe you don't call it cheating, frankly I don't care. As far as I'm concerned you could have your suit lined with aces and electromagnets in your boots. As long as you *won*. I'm not here to discuss moral points with you. I said I had a proposition.

"We have worked hard for that money—but it still isn't enough. To be precise, we need three billion credits. The only way to get that sum is by gambling—with these twenty-seven million as bankroll."

"And what do I get out of it?" Jason asked the question coolly, as if any bit of the fantastic proposition made sense.

"Everything above the three billion you can keep, that should be fair enough. You're not risking your own money, but you stand to make enough to keep you for life if you win."

"And if I lose—?"

Kerk thought for a moment, not liking the taste of the idea. "Yes—there is the chance you might lose, I hadn't thought about that."

He reached a decision. "If you lose—well I suppose that is just a risk we will have to take. Though I think I would kill you then. The ones who died to get the twenty-seven million deserve at least that." He said it quietly, without malice, and it was more of a promise than a threat.

Stamping to his feet Jason refilled his stein and offered one to Kerk who took it with a nod of thanks. He paced back and forth, unable to sit. The whole proposition made him angry—yet at the same time had a fatal fascination. He was a gambler and this talk was like the taste of drugs to an addict.

Stopping suddenly, he realized that his mind had been made up for some time. Win or lose—live or die—how could he say no to the chance to gamble with money like that! He turned suddenly and jabbed his finger at the big man in the chair.

"I'll do it—you probably knew I would from the time you came in here. There are some terms of my own, though. I want to know who you are, and who *they* are you keep talking about. And where did the money come from. Is it stolen?"

Kerk drained his own stein and pushed it away from him

"Stolen money? No, quite the opposite. Two years work mining and refining ore to get it. It was mined on Pyrrus and sold here on Cassylia. You can check on that very easily. I sold it. I'm the Pyrric ambassador to this planet." He smiled at the thought. "Not that that means much, I'm ambassador to at least six other planets as well. Comes in handy when you want to do business."

Jason looked at the muscular man with his gray hair and worn, military cut clothes, and decided not to laugh. You heard of strange things out in the frontier planets and every word could be true. He had never heard of Pyrrus either, though that didn't mean anything. There were over thirty-thousand known planets in the inhabited universe.

"I'll check on what you have told me," Jason said. "If it's true, we can do business. Call me tomorrow—"

"No," Kerk said. "The money has to be won tonight. I've already issued a check for this twenty-seven million, it will bounce as high as the Pleiades unless we deposit the money in the morning, so that's our time limit."

With each moment the whole affair became more fantastic—and more intriguing for Jason. He looked at his watch. There was still enough time to find out if Kerk was lying or not.

"All right, we'll do it tonight," he said. "Only I'll have to have one of those bills to check."

Kerk stood up to go. "Take them all, I won't be seeing you again until after you've won. I'll be at the Casino of course, but don't recognize me. It would be much better if they didn't know where your money was coming from or how much you had."

Then he was gone, after a bone-crushing handclasp that closed on Jason's hand like vise jaws. Jason was alone with the money. Fanning the bills out like a hand of cards he stared at their sepia and gold faces, trying to get the reality through his head. Twenty-seven million credits. What was to stop him from just walking out the door with them and vanishing. Nothing really, except his own sense of honor.

Kerk Pyrrus, the man with the

same last name as the planet he came from, was the universe's biggest fool. Or he knew just what he was doing. From the way the interview had gone the latter seemed the better bet.

"He *knows* I would much rather gamble with the money than steal it," he said wryly.

Slipping a small gun into his waistband holster and pocketing the money he went out.

II.

The robot teller at the bank just pinged with electronic shock when he presented one of the bills and flashed a panel that directed him to see Vice President Wain. Wain was a smooth customer who bugged his eyes and lost some of his tan when he saw the sheaf of bills.

"You . . . wish to deposit these with us?" he asked while his fingers unconsciously stroked them.

"Not today," Jason said. "They were paid to me as a debt. Would you please check that they are authentic and change them? I'd like five hundred thousand credit notes."

Both of his inner chest pockets were packed tight when he left the bank. The bills were good and he felt like a walking mint. This was the first time in his entire life that carrying a large sum of money made him uncomfortable. Waving to a passing helicab he went directly to the Casino, where he knew he would be safe—for a while.

Cassylia Casino was the playspot of the nearby cluster of star systems. It was the first time Jason had seen it, though he knew its type well. He had spent most of his adult life in casinos like this on other worlds. The decor differed but they were always the same. Gambling and socialities in public—and behind the scenes all the private vice you could afford. Theoretically no-limit games, but that was true only up to a certain point. When the house was really hurt the honest games stopped being square and the big winner had to watch his step very carefully. These were the odds Jason dinAlt had played against countless times before. He was wary but not very concerned.

The dining room was almost empty and the major-domo quickly rushed to the side of the relaxed stranger in the richly cut clothes. Jason was lean and dark, looking more like the bored scion of some rich family than a professional gambler. This appearance was important and he cultivated it. The cuisine looked good and the cellar turned out to be wonderful. He had a professional talk with the sommelier while waiting for the soup, then settled down to enjoy his meal.

He ate leisurely and the large dining room was filled before he was through. Watching the entertainment over a long cigar killed some more time. When he finally went to the gaming rooms they were filled and active.

Moving slowly around the room he dropped a few thousand credits. He scarcely noticed how he played, giving more attention to the feel of the games. The play all seemed honest

and none of the equipment was rigged. That could be changed very quickly, he realized. Usually it wasn't necessary, house percentage was enough to assure a profit.

Once he saw Kerk out of the corner of his eye but he paid him no attention. The ambassador was losing small sums steadily at seven-and-silver and seemed to be impatient. Probably waiting for Jason to begin playing seriously. He smiled and strolled on slowly.

Jason settled on the dice table as he usually did. It was the surest way to make small winnings. *And if I feel it tonight I can clean this casino out!* That was his secret, the power that won for him steadily—and every once in a while enabled him to make a killing and move on quickly before the hired thugs came to get the money back.

The dice reached him and he threw an eight the hard way. Betting was light and he didn't push himself, just kept away from the sevens. He made the point and passed a natural. Then he crapped out and the dice moved on.

Sitting there, making small automatic bets while the dice went around the table, he thought about the power. *Funny, after all the years of work we still don't know much about* psi. *They can train people a bit, and improve skills a bit—but that's all.*

He was feeling strong tonight, he knew that the money in his pocket gave him the extra lift that sometimes helped him break through. With his eyes half closed he picked up the dice—and let his mind gently caress the pattern of sunken dots. Then they shot out of his hand and he stared at a seven.

It was there.

Stronger than he had felt it in years. The stiff weight of those million credit notes had done it. The world all around was sharp-cut clear and the dice was completely in his control. He knew to the tenth credit how much the other players had in their wallets and was aware of the cards in the hands of the players behind him.

Slowly, carefully, he built up the stakes.

There was no effort to the dice, they rolled and sat up like trained dogs. Jason took his time and concentrated on the psychology of the players and the stick man. It took almost two hours to build his money on the table to seven hundred thousand credits. Then he caught the stick man signaling they had a heavy winner. He waited until the hard-eyed man strolled over to watch the game, then he smiled happily, bet all his table stakes—and blew it on one roll of the dice. The house man smiled happily, the stick man relaxed—and out of the corner of his eye Jason saw Kerk turning a dark purple.

Sweating, pale, his hand trembling ever so slightly, Jason opened the front of his jacket and pulled out one of the envelopes of new bills. Breaking the seal with his finger he dropped two of them on the table.

"Could we have a no-limit game?"

he asked, "I'd like to—win back some of my money."

The stick man had trouble controlling his smile now, he glanced across at the house man who nodded a quick *yes*. They had a sucker and they meant to clean him. He had been playing from his wallet all evening, now he was cracking into a sealed envelope to try for what he had lost. A thick envelope too, and probably not his money. Not that the house cared in the least. To them money had no loyalties. The play went on with the Casino in a very relaxed mood.

Which was just the way Jason wanted it. He needed to get as deep into them as he could before someone realized *they* might be on the losing end. The rough stuff would start and he wanted to put it off as long as possible. It would be hard to win smoothly then—and his *psi* power might go as quickly as it had come. That had happened before.

He was playing against the house now, the two other players were obvious shills, and a crowd had jammed solidly around to watch. After losing and winning a bit he hit a streak of naturals and his pile of gold chips tottered higher and higher. There was nearly a billion there, he estimated roughly. The dice were still falling true, though he was soaked with sweat from the effort. Betting the entire stack of chips he reached for the dice. The stick man reached faster and hooked them away.

"House calls for new dice," he said flatly.

Jason straightened up and wiped his hands, glad of the instant's relief. This was the third time the house had changed dice to try and break his winning streak, it was their privilege. The hard-eyed Casino man opened his wallet as he had done before and drew out a pair at random. Stripping off their plastic cover he threw them the length of the table to Jason. They came up a natural seven and Jason smiled.

When he scooped them up the smile slowly faded. The dice were transparent, finely made, evenly weighted on all sides—and crooked.

The pigment on the dots of five sides of each die was some heavy metal compound, probably lead. The sixth side was a ferris compound. They would roll true unless they hit a magnetic field—that meant the entire surface of the table could be magnetized. He could never have spotted the difference if he hadn't *looked* at the dice with his mind. But what could he do about it?

Shaking them slowly he glanced quickly around the table. There was what he needed. An ashtray with a magnet in its base to hold it to the metal edge of the table. Jason stopped shaking the dice and looked at them quizzically, then reached over and grabbed the ashtray. He dropped the base against his hand.

As he lifted the ashtray there was a concerted gasp from all sides. The dice were sticking there, upside down, box cars showing.

"Are these what you call honest dice?" he asked.

The man who had thrown out the dice reached quickly for his hip pocket. Jason was the only one who saw what happened next. He was watching that hand closely, his own fingers near his gun butt. As the man dived into his pocket a hand reached out of the crowd behind him. From its squarecut size it could have belonged to only one person. The thick thumb and index finger clamped swiftly around the house man's wrist, then they were gone. The man screamed shrilly and held up his arm, his hand dangling limp as a glove from the broken wrist bones.

With his flank well protected, Jason could go on with the game. "The old dice if you don't mind," he said quietly.

Dazedly the stick man pushed them over. Jason shook quickly and rolled. Before they hit the table he realized he couldn't control them—the transient *psi* power had gone.

End over end they turned. And faced up seven.

Counting the chips as they were pushed over to him he added up a bit under two billion credits. They would be winning that much if he left the game now—but it wasn't the three billion that Kerk needed. Well, it would have to be enough. As he reached for the chips he caught Kerk's eye across the table and the other man shook his head in a steady *no*.

"Let it ride," Jason said wearily, "one more roll."

He breathed on the dice, polished them on his cuff, and wondered how he had ever gotten into this spot. Billions riding on a pair of dice. That was as much as the annual income of some planets. The only reason there *could* be stakes like that was because the planetary government had a stake in the Casino. He shook as long as he could, reaching for the control that wasn't there—then let fly.

Everything else had stopped in the Casino and people were standing on tables and chairs to watch. There wasn't a sound from that large crowd. The dice bounced back from the board with a clatter loud in the silence and tumbled over the cloth.

A five and a one. Six. He still had to make his point. Scooping up the dice Jason talked to them, mumbled the ancient oaths that brought luck and threw again.

It took five throws before he made the six.

The crowd echoed his sigh and their voices rose quickly. He wanted to stop, take a deep breath, but he knew he couldn't. Winning the money was only part of the job—they now had to get away with it. It had to look casual. A waiter was passing with a tray of drinks, Jason stopped him and tucked a hundred credit note in his pocket.

"Drinks are on me," he shouted while he pried the tray out of the waiter's hands. Well-wishers cleared the filled glasses away quickly and Jason piled the chips onto the tray. They more than loaded it, but Kerk appeared that moment with a second tray.

"I'll be glad ot help you sir, if you will permit me," he said.

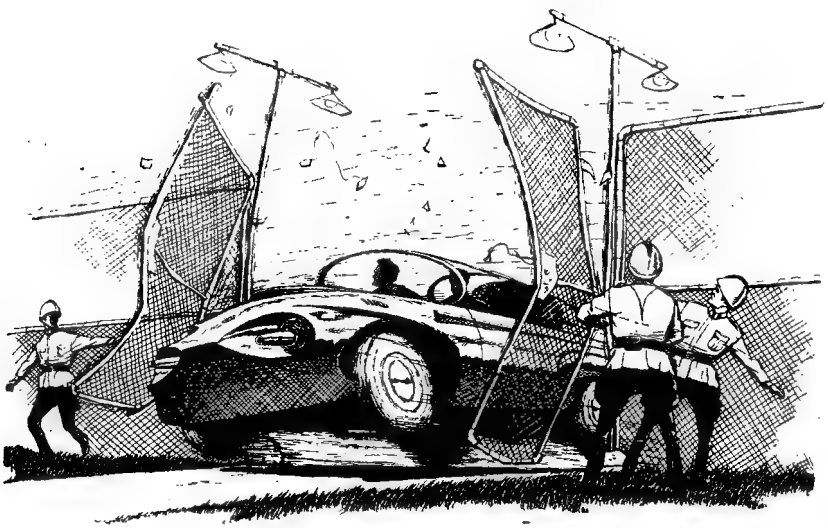
Jason looked at him, and laughed permission. It was the first time he had a clear look at Kerk in the Casino. He was wearing loose, purple evening pajamas over what must have been a false stomach. The sleeves were long and baggy so he looked fat rather than muscular. It

have that kind of money on hand."

"What's the matter," Kerk shouted, "trying to get out of paying him? You took *my* money easy enough when I lost—it works both ways!"

The onlookers, always happy to see the house lose, growled their disagreement. Jason finished the matter in a loud voice.

"I'll be reasonable, give me what



was a simple but effective disguise.

Carefully carrying the loaded trays, surrounded by a crowd of excited patrons, they made their way to the cashier's window. The manager himself was there, wearing a sickly grin. Even the grin faded when he counted the chips.

"Could you come back in the morning," he said, "I'm afraid we don't

cash you have and I'll take a check for the balance."

There was no way out. Under the watchful eye of the gleeful crowd the manager packed an envelope with bills and wrote a check. Jason took a quick glimpse at it, then stuffed it into an inside pocket. With the envelope under one arm he followed Kerk towards the door.

Because of the onlookers there was no trouble in the main room, but just as they reached the side entrance two men moved in, blocking the way.

"Just a moment—" one said. He never finished the sentence. Kerk walked into them without slowing and they bounced away like tenpins. Then Kerk and Jason were out of the building and walking fast.

"Into the parking lot," Kerk said. "I have a car there."

When they rounded the corner there was a car bearing down on them. Before Jason could get his gun clear of the holster Kerk was in front of him. His arm came up and his big ugly gun burst through the cloth of his sleeve and jumped into his hand. A single shot killed the driver and the car swerved and crashed. The other two men in the car died coming out of the door, their guns dropping from their hands.

After that they had no trouble. Kerk drove at top speed away from the Casino, the torn sleeve of his pajamas whipping in the breeze, giving glimpses of the big gun back in the holster.

"When you get the chance," Jason said, "you'll have to show me how that trick holster works."

"When we get the chance," Kerk answered as he dived the car into the city access tube.

III.

The building they stopped at was one of the finer residences in Cassylia. As they had driven, Jason counted the money and separated his share. Almost sixteen million credits. It still didn't seem quite real. When they got out in front of the building he gave Kerk the rest.

"Here's your three billion, don't think it was easy," he said.

"It could have been worse," was his only answer.

The recorded voice scratched in the speaker over the door.

"Sire Ellus has retired for the night, would you please call again in the morning. All appointments are made in advan—"

The voice broke off as Kerk pushed the door open. He did it almost effortlessly with the flat of his hand. As they went in Jason looked at the remnants of torn and twisted metal that hung in the lock and wondered again about his companion.

Strength—more than physical strength—he's like an elemental force. I have the feeling that nothing can stop him.

It made him angry—and at the same time fascinated him. He didn't want out of the deal until he found out more about Kerk and his planet. And "they" who had died for the money he gambled.

Sire Ellus was old, balding and angry, not at all used to having his rest disturbed. His complaints stopped suddenly when Kerk threw the money down on the table.

"Is the ship being loaded yet, Ellus? Here's the balance due." Ellus only fumbled the bills for a moment before he could answer Kerks question.

"The ship—but, of course. We began loading when you gave us the deposit. You'll have to excuse my confusion, this is a little irregular. We never handle transactions of this size in cash."

"That's the way I like to do business," Kerk answered him, "I've canceled the deposit, this is the total sum. Now how about a receipt."

Ellus had made out the receipt before his senses returned. He held it tightly while he looked uncomfortably at the three billion spread out before him.

"Wait—I can't take it now, you'll have to return in the morning, to the bank. In normal business fashion," Ellus decided firmly.

Kerk reached over and gently drew the paper out of Ellus' hand.

"Thanks for the receipt," he said. "I won't be here in the morning so this will be satisfactory. And if you're worried about the money I suggest you get in touch with some of your plant guards or private police. You'll feel a lot safer."

When they left through the shattered door Ellus was frantically dialing numbers on his screen. Kerk answered Jason's next question before he could ask it.

"I imagine you would like to live to spend that money in your pocket, so I've booked two seats on an interplanetary ship," he glanced at the car clock. "It leaves in about two hours so we have plenty of time. I'm hungry, let's find a restaurant. I hope you have nothing at the hotel worth going back for. It would be a little difficult."

"Nothing worth getting killed for," Jason said. "Now where can we go to eat—there are a few questions I would like to ask you."

They circled carefully down to the transport levels until they were sure they hadn't been followed. Kerk nosed the car into a darkened loading dock where they abandoned it.

"We can always get another car," he said, "and they probably have this one spotted. Let's walk back to the freightway, I saw a restaurant there as we came by."

Dark and looming shapes of overland freight carriers filled the parking lot. They picked their way around the man-high wheels and into the hot and noisy restaurant. The drivers and early morning workers took no notice of them as they found a booth in the back and dialed a meal.

Kerk chiseled a chunk of meat off the slab in front of him and popped it cheerfully into his mouth. "Ask your questions," he said. "I'm feeling much better already."

"What's in this ship you arranged for tonight—what kind of a cargo was I risking my neck for?"

"I thought you were risking your neck for money," Kerk said dryly. "But be assured it was in a good cause. That cargo means the survival of a world. Guns, ammunition, mines, explosives and such."

Jason choked over a mouthful of food. "Gun-running! What are you doing, financing a private war? And

how can you talk about survival with a lethal cargo like that? Don't try and tell me they have a peaceful use. Who are you killing?"

Most of the big man's humor had vanished, he had that grim look Jason knew well.

"Yes, peaceful would be the right word. Because that is basically all we want. Just to live in peace. And it is not *who* are we killing—it is *what* we are killing."

Jason pushed his plate away with an angry gesture. "You're talking in riddles," he said. "What you say has no meaning."

"It has meaning enough," Kerk told him, "but only on one planet in the universe. Just how much do you know about Pyrrus?"

"Absolutely nothing."

For a moment Kerk sat wrapped in memory, scowling distantly. Then he went on.

"Mankind doesn't belong on Pyrrus—yet has been there for almost three hundred years now. The age expectancy of my people is sixteen years. Of course most adults live beyond that, but the high child mortality brings the average down.

"It is everything that a humanoid world should not be. The gravity is nearly twice Earth normal. The temperature can vary daily from arctic to tropic. The climate—well you have to experience it to believe it. Like nothing you've seen anywhere else in the galaxy."

"I'm frightened," Jason said dryly. "What do you have—methane or chlorine reactions? I've been down on planets like that—"

Kerk slammed his hand down hard on the table. The dishes bounced and the table legs creaked. "Laboratory reactions!" he growled. "They look great on a bench—but what happens when you have a world filled with those compounds? In an eye-wink of galactic time all the violence is locked up in nice, stable compounds. The atmosphere may be poisonous for an oxygen breather, but taken by itself it's as harmless as weak beer.

"There is only one setup that is pure poison as a planetary atmosphere. Plenty of H_2O, the most universal solvent you can find, plus free oxygen to work on—"

"Water and oxygen!" Jason broke in. "You mean Earth—or a planet like Cassylia here? That's preposterous."

"Not at all. Because you were born in this kind of environment you accept it as right and natural. You take it for granted that metals corrode, coastlines change, and storms interfere with communication. These are normal occurrences on oxygen-water worlds. On Pyrrus these conditions are carried to the nth degree.

"The planet has an axial tilt of almost forty-two degrees, so there is a tremendous change in temperature from season to season. This is one of the prime causes of a constantly changing icecap. The weather generated by this is spectacular to say the least."

"If that's all," Jason said, "I don't see why—"

"That's *not* all—it's barely the begining. The open seas perform the dual destructive function of supplying water vapor to keep the weather going, and building up gigantic tides. Pyrrus' two satellites, Samas and Bessos, combine at times to pull the oceans up into thirty meter tides. And until you've seen one of these tides lap over into an active volcano you've seen nothing.

"Heavy elements are what brought us to Pyrrus—and these same elements keep the planet at a volcanic boil. There have been at least thirteen super-novas in the immediate stellar neighborhood. Heavy elements can be found on most of their planets of course—as well as completely unbreathable atmospheres. Long-term mining and exploitation can't be done by anything but a self-sustaining colony. Which meant Pyrrus. Where the radioactive elements are locked in the planetary core, surrounded by a shell of lighter ones. While this allows for the atmosphere men need, it also provides unceasing volcanic activity as the molten plasma forces its way to the surface."

For the first time Jason was silent. Trying to imagine what life could be like on a planet constantly at war with itself.

"I've saved the best for last," Kerk said with grim humor. "Now that you have an idea of what the environment is like—think of the kind of life forms that would populate it. I doubt if there is one off-world species that would live a minute. Plants and animals on Pyrrus are *tough*. They fight the world and they fight each other. Hundreds of thousands of years of genetic weeding-out have produced things that would give even an electronic brain nightmares. Armor-plated, poisonous, claw-tipped and fanged mouthed. That describes everything that walks, flaps or just sits and grows. Ever see a plant with teeth—that bite? I don't think you want to. You'd have to be on Pyrrus and that means you would be dead within seconds of leaving the ship. Even I'll have to take a refresher course before I'll be able to go outside the landing buildings. The unending war for survival keeps the life forms competing and changing. Death is simple, but the ways of dealing it too numerous to list."

Unhappiness rode like a weight on Kerk's broad shoulders. After long moments of thought he moved visibly to shake it off. Returning his attention to his food and mopping the gravy from his plate, he voiced part of his feelings.

"I suppose there is no logical reason why we should stay and fight this endless war. Except that Pyrrus is our home." The last piece of gravy-soaked bread vanished and he waved the empty fork at Jason.

"Be happy you're an off-worlder and will never have to see it."

"That's where you're wrong," Jason said as calmly as he could. "You see, I'm going back with you."

IV.

"Don't talk stupidly," Kerk said as he punched for a duplicate order of steak. "There are much simpler ways of committing suicide. Don't you realize that you're a millionaire now? With what you have in your pocket you can relax the rest of your life on the pleasure planets. Pyrrus is a death world, not a sightseeing spot for jaded tourists. I cannot permit you to return with me."

Gamblers who lose their tempers don't last long. Jason was angry now. Yet it showed only in a negative way. In the lack of expression on his face and the calmness of his voice.

"Don't tell me what I can or cannot do, Kerk Pyrrus. You're a big man with a fast gun—but that doesn't make you my boss. All you can do is stop me from going back on your ship. But I can easily afford to get there another way. And don't try to tell me I want to go to Pyrrus for sightseeing when you have no idea of my real reasons."

Jason didn't even try to explain his reasons, they were only half realized and too personal. The more he traveled, the more things looked the same to him. The old, civilized planets sank into a drab similarity. Frontier worlds all had the crude sameness of temporary camps in a forest. Not that the galactic worlds bored him. It was just that he had found their limitations—yet had never found his own. Until he met Kerk he had acknowledged no man his superior, or even his equal. This was more than egotism. It was facing facts. Now he was forced to face the fact that there was a whole world of people who might be superior to him. Jason could never rest content until he had been there and seen for himself. Even if he died in the attempt.

None of this could be told to Kerk. There were other reasons he would understand better.

"You're not thinking ahead when you prevent me from going to Pyrrus," Jason said. "I'll not mention any moral debt you owe me for winning that money you needed. But what about the next time? If you needed that much lethal goods once, you'll probably need it again some day. Wouldn't it be better to have me on hand—old tried and true—than dreaming up some new and possibly unreliable scheme?"

Kerk chewed pensively on the second serving of steak. "That makes sense. And I must admit I hadn't thought of it before. One failing we Pyrrans have is a lack of interest in the future. Staying alive day by day is enough trouble. So we tend to face emergencies as they arrive and let the dim future take care of itself. You can come. I hope you will still be alive when we need you. As Pyrran ambassador to a lot of places I officially invite you to our planet. All expenses paid. On the condition you obey completely all our instructions regarding your personal safety."

"Conditions accepted," Jason said. And wondered why he was so cheerful about signing his own death warrant.

Kerk was shoveling his way through his third dessert when his alarm watch gave a tiny hum. He dropped his fork instantly and stood up. "Time to go," he said. "We're on schedule now." While Jason scrambled to his feet, he jammed coins into the meter until the *paid* light came on. Then they were out the door and walking fast.

Jason wasn't at all surprised when they came on a public escalator just behind the restaurant. He was beginning to realize that since leaving the casino their every move had been carefully planned and timed. Without a doubt the alarm was out and the entire planet being searched for them. Yet so far they hadn't noticed the slightest sign of pursuit. This wasn't the first time Jason had to move just one jump ahead of the authorities—but it was the first time he had let someone else lead him by the hand while he did it. He had to smile at his own automatic agreement. He had been a loner for so many years that he found a certain inverse pleasure in following someone else.

"Hurry up," Kerk growled after a quick glance at his watch. He set a steady, killing pace up the escalator steps. They went up five levels that way—without seeing another person—before Kerk relented and let the escalator do the work.

Jason prided himself on keeping in condition. But the sudden climb, after the sleepless night, left him panting heavily and soaked with sweat. Kerk, cool of forehead and breathing normally, didn't show the slightest sign that he had been running.

They were at the second motor level when Kirk stepped off the slowly rising steps and waved Jason after him. As they came through the exit to the street a car pulled up to the curb in front of them. Jason had enough sense not to reach for his gun. At the exact moment they reached the car the driver opened the door and stepped out. Kerk passed him a slip of paper without saying a word and slipped in behind the wheel. There was just time for Jason to jump in before the car pulled away. The entire transfer had taken less than three seconds.

There had been only a glimpse of the driver in the dim light, but Jason had recognized him. Of course he had never seen the man before, but after knowing Kerk he couldn't mistake the compact strength of a native Pyrran.

"That was the receipt from Ellus you gave him," Jason said.

"Of course. That takes care of the ship and the cargo. They'll be off planet and safely away before the casino check is traced to Ellus. So now let's look after ourselves. I'll explain the plan in detail so there will be no slip-ups on your part. I'll go through the whole thing once and if there are any questions you'll ask them when I'm finished."

The tones of command were so automatic that Jason found himself listening in quiet obedience. Though one part of his mind wanted him to

smile at the quick assumption of his incompetence.

Kerk swung the car into the steady line of traffic heading out of the city to the spaceport. He drove easily while he talked.

"There is a search on in the city, but we're well ahead of that. I'm sure the Cassylians don't want to advertise their bad sportsmanship so there won't be anything as crude as a roadblock. But the port will be crawling with every agent they have. They know once the money gets off-planet it is gone forever. When we make a break for it they will be sure we still have the goods. So there will be no trouble with the munition ship getting clear."

Jason sounded a little shocked. "You mean you're setting us up as clay pigeons to cover the take-off of the ship."

"You could put it that way. But since we have to get off planet anyway, there is no harm in using our escape as a smokescreen. Now shut up until I've finished, like I told you. One more interruption and I dump you by the road."

Jason was sure he would. He listened intently—and quietly—as Kerk repeated word for word what he had said before, then continued.

"The official car gate will probably be wide open with the traffic through it. And a lot of the agents will be in plain clothes. We might even get onto the field without being recognized, though I doubt it. It is of no importance. We will drive through the gate and to the take-off pad. The *Pride of Darkhan,* for which we hold tickets, will be sounding its two-minute siren and unhooking the gangway. By the time we get to our seats the ship will take off."

"That's all overy fine," Jason said. "But what will the guards be doing all this time?"

"Shooting at us and each other. We will take advantage of the confusion to get aboard."

This answer did nothing to settle Jason's mind, but he let it slide for the moment. "All right—say we *do* get aboard. Why don't they just prevent take-off until we have been dragged out and stood against a wall?"

Kerk spared him a contemptuous glance before he returned his eyes to the road. "I said the ship was the *Pride of Darkhan.* If you had studied this system at all, you would know what that means. Cassylia and Darkhan are sister planets and rivals in every way. It has been less than two centuries since they fought an intrasystem war that almost destroyed both of them. Now they exist in an armed-to-the-teeth neutrality that neither dare violate. The moment we set foot aboard the ship we are on Darkhan territory. There is no extradition agreement between the planets. Cassylia may want us—but not badly enough to start another war."

That was all the explanation there was time for. Kerk swung the car out of the rush of traffic and onto a bridge marked *Official Cars Only.* Jason had a feeling of nakedness as they rolled

under the harsh port lights towards the guarded gate ahead.

It was closed.

Another car approached the gate from the inside and Kerk slowed their car to a crawl. One of the guards talked to the driver of the car inside the port, then waved to the gate attendant. The barrier gate began to swing inwards and Kerk jammed down on the accelerator.

Everything happened at once. The turbine howled, the spinning tires screeched on the road and the car crashed open the gate. Jason had a vanishing glimpse of the open-mouthed guards, then they were skidding around the corner of a building. A few shots popped after them, but none came close.

Driving with one hand, Kerk reached under the dash and pulled out a gun that was the twin of the monster strapped to his arm. "Use this instead of your own," he said. "Rocket-propelled explosive slugs. Make a great bang. Don't bother shooting at anyone—I'll take care of that. Just stir up a little action and make them keep their distance. Like this."

He fired a single, snap-shot out the side window and passed the gun to Jason almost before the slug hit. An empty truck blew up with a roar, raining pieces on the cars around and sending their drivers fleeing in panic.

After that it was a nightmare ride through a madhouse. Kerk drove with an apparent contempt for violent death. Other cars followed them and were lost in wheel-raising turns. They careened almost the full length of the field, leaving a trail of smoking chaos.

Then the pursuit was all behind them and the only thing ahead was the slim spire of the *Pride of Darkhan.*

The *Pride* was surrounded by a strong wire fence as suited the begrudged status of her planetary origin. The gate was closed and guarded by soldiers with leveled guns, waiting for a shot at the approaching car. Kerk made no attempt to come near them. Instead he fed the last reserves of power to the car and headed for the fence. "Cover your face," he shouted.

Jason put his arms in front of his head just as they hit.

Torn metal screamed, the fence buckled, wrapped itself around the car, but did not break. Jason flew off the seat and into the padded dash. By the time Kerk had the warped door open, he realized that the ride was over. Kerk must have seen the spin of his eyeballs because he didn't talk, just pulled Jason out and threw him onto the hood of the ruined car.

"Climb over the buckled wire and make a run for the ship," he shouted.

If there was any doubt what he meant, he set Jason an example of fine roadwork. It was inconceivable that someone of his bulk could run so fast, yet he did. He moved more like a charging tank than a man. Jason shook the fog from his head and worked up some speed himself. Nevertheless, he was barely halfway to the ship when Kerk hit the gangway. It was already unhooked from the

ship, but the shocked attendants stopped rolling it away as the big man bounded up the steps.

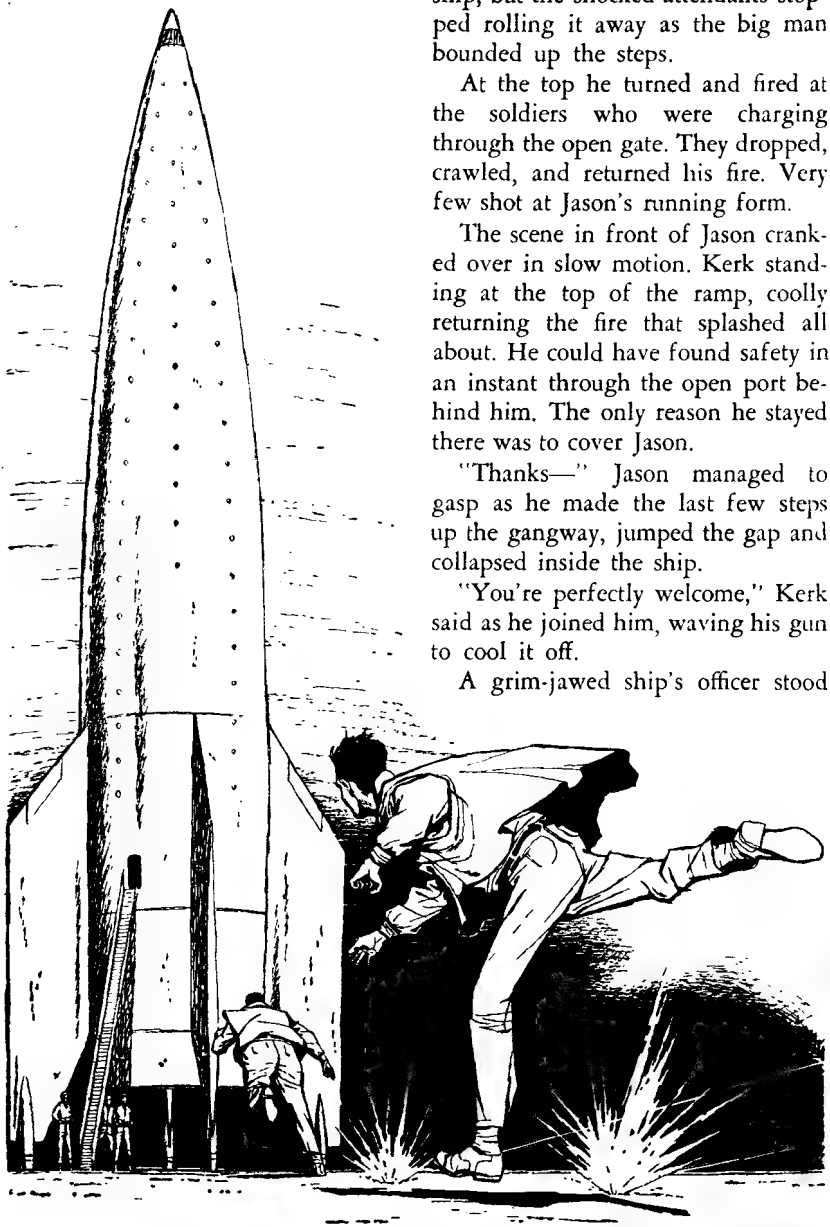
At the top he turned and fired at the soldiers who were charging through the open gate. They dropped, crawled, and returned his fire. Very few shot at Jason's running form.

The scene in front of Jason cranked over in slow motion. Kerk standing at the top of the ramp, coolly returning the fire that splashed all about. He could have found safety in an instant through the open port behind him. The only reason he stayed there was to cover Jason.

"Thanks—" Jason managed to gasp as he made the last few steps up the gangway, jumped the gap and collapsed inside the ship.

"You're perfectly welcome," Kerk said as he joined him, waving his gun to cool it off.

A grim-jawed ship's officer stood



back out of range of fire from the ground and looked them both up and down. "And just what is going on here," he growled.

Kerk tested the barrel with a wet thumb, then let the gun slide back into its holster. "We are law-abiding citizens of a different system who have committed no criminal acts. The savages of Cassylia are too barbarous for civilized company. Therefore we are going to Darkhan—here are our tickets—in whose soverign territory I believe we are at this moment." This last was added for the benefit of the Cassylian officer who had just stumbled to the top of the gangway and was raising his gun.

The soldier couldn't be blamed. He saw these badly wanted criminals getting away. Aboard a Darkhan ship as well. Anger got the best of him and he brought his gun up.

"Come out of there you scum. You're not escaping that easily. Come out slow with your hands up or I'll blast you—"

It was a frozen moment of time that stretched and stretched without breaking. The pistol covered Kerk and Jason. Neither of them attempted to reach for their own guns.

The gun twitched a bit as the ship's officer moved, then steadied back on the two men. The Darkhan spaceman hadn't gone far, just a pace across the lock. This was enough to bring him next to a red box set flush with the wall. With a single, swift gesture he flipped up the cover and poised his thumb over the button inside. When he smiled his lips peeled back to show all of his teeth. He had made up his mind, and it was the arrogance of the Cassylian officer that had been the deciding factor.

"Fire a single shot into Darkhan territory and I press this button," he shouted. "And you know what this button does—every one of your ships has them as well. Commit a hostile act against this ship and *someone* will press a button. Every control rod will be blown out of the ship's pile at that instant and half your filthy city will go up in the explosion." His smile was chiseled on his face and there was no doubt he would do what he said. "Go ahead—fire. I think I would enjoy pressing this."

The take-off siren was hooting now, the *close lock* light blinking an angry message from the bridge. Like four actors in a grim drama they faced each other an instant more.

Then the Cassylian officer, growling with unvoicable frustrated anger, turned and leaped back to the steps.

"All passengers board ship. Forty-five seconds to take-off. Clear the port." The ship's officer slammed shut the cover of the box and locked it as he talked. There was barely time to make the acceleration couches before the *Pride of Darkhan* cleared ground.

V.

Once the ship was in orbit the captain sent for Jason and Kerk. Kerk took the floor and was completely frank about the previous night's activities. The only fact of importance he left out was Jason's background as

a professional gambler. He drew a beautiful picture of two lucky strangers whom the evil forces of Cassylia wanted to deprive of their gambling profits. All this fitted perfectly the captain's preconceptions of Cassylia. In the end he congratulated his officer on the correctness of his actions and began the preparation of a long report to his government. He gave the two men his best wishes as well as the liberty of the ship.

It was a short trip. Jason barely had time to catch up on his sleep before they grounded on Darkhan. Being without luggage they were the first ones through customs. They left the shed just in time to see another ship landing in a distant pit. Kerk stopped to watch it and Jason followed his gaze. It was a gray, scarred ship. With the stubby lines of a freighter—but sporting as many guns as a cruiser.

"Yours, of course," Jason said.

Kerk nodded and started towards the ship. One of the locks opened as they came up but no one appeared. Instead a remote release folding ladder rattled down to the ground. Kerk swarmed up it and Jason followed glumly. Somehow, he felt, this was overdoing the no-frills-and-nonsense attitude.

Jason was catching on to Pyrran ways though. The reception aboard ship for the ambassador was just what he expected. Nothing. Kerk closed the lock himself and they found couches as the take-off horn sounded. The main jets roared and acceleration smashed down on Jason.

It didn't stop. Instead it grew stronger, squeezing the air out of his lungs and the sight from his eyes. He screamed but couldn't hear his own voice through the roaring in his ears. Mercifully he blacked out.

When consciousness returned the ship was at zero-G. Jason kept his eyes closed and let the pain seep out of his body. Kerk spoke suddenly, he was standing next to the couch.

"My fault, Meta, I should have told you we had a 1-G passenger aboard. You might have eased up a bit on your usual bone-breaking take-off."

"It doesn't seem to have harmed him much—but what's he doing here?"

Jason felt mild surprise that the second voice was a girl's. But he wasn't interested enough to go to the trouble of opening his sore eyes.

"Going to Pyrrus. I tried to talk him out of it, of course, but I couldn't change his mind. It's a shame, too, I would like to have done more for him. He's the one who got the money for us."

"Oh, that's awful," the girl said. Jason wondered why it was *awful*. It didn't make sense to his groggy mind. "It would have been much better if he stayed on Darkhan," the girl continued. "He's very nice looking. I think it's a shame he has to die."

That was too much for Jason. He pried one eye open, then the other. The voice belonged to a girl about twenty-one who was standing next to the bed, gazing down at Jason. She was beautiful.

Jason's eyes opened wider as he realized she was *very* beautiful—with

the kind of beauty never found in the civilized galaxy. The women he had known all ran to pale skin, hollow shoulders, gray faces covered with tints and dyes. They were the product of centuries of breeding weaknesses back into the race, as the advance of medicine kept alive more and more nonsurvival types.

This girl was the direct opposite in every way. She was the product of survival on Pyrrus. The heavy gravity that produced bulging muscles in men, brought out firm strength in straplike female muscles. She had the figure of a goddess, tanned skin and perfectly formed face. Her hair, which was cut short, circled her head like a golden crown. The only unfeminine thing about her was the gun she wore in a bulky forearm holster. When she saw Jason's eyes open she smiled at him. Her teeth were as even and as white as he had expected.

"I'm Meta, pilot of this ship. And you must be—"

"Jason dinAlt. That was a lousy take-off, Meta."

"I'm really very sorry," she laughed. "But being born on a two-G planet does make one a little immune to acceleration. I save fuel too, with the synergy curve—"

Kerk gave a noncommittal grunt. "Come along Meta, we'll take a look at the cargo. Some of the new stuff will plug the gaps in the perimeter."

"Oh yes," she said, almost clapping her hands with happiness. "I read the specs, they're simply wonderful."

Like a schoolgirl with a new dress. Or a box of candy, That's a great attitude to have towards bombs and flamethrowers. Jason smiled wryly at the thought as he groaned off the couch. The two Pyrrans had gone and he pulled himself painfully through the door after them.

It took him a long time to find his way to the hold. The ship was big and apparently empty of crew. Jason finally found a man sleeping in one of the brightly lit cabins. He recognized him as the driver who had turned the car over to them on Cassylia. The man, who had been sleeping soundly a moment before, opened his eyes as soon as Jason drifted into the room. He was wide awake.

"How do I get to the cargo hold," Jason asked.

The other told him, closed his eyes and went instantly back to sleep before Jason could even say thanks.

In the hold, Kerk and Meta had opened some of the crates and were chortling with joy over their lethal contents. Meta, a pressure canister in her arms, turned to Jason as he came through the door.

"Just look at this," she said. "This powder in here—why you can eat it like dirt, with less harm. Yet it is instantly deadly to all forms of vegetable life . . ." She stopped suddenly as she realized Jason didn't share her extreme pleasure. "I'm sorry. I forgot for a moment there that you weren't a Pyyran. So you don't really understand, do you?"

Before he could answer, the PA speaker called her name.

"Jump time," she said. "Come with me to the bridge while I do the equations. We can talk there. I know so little about any place except Pyrrus that I have a million questions to ask."

Jason followed her to the bridge where she relieved the duty officer and began taking readings for the jump-setting. She looked out of place among the machines, a sturdy but supple figure in a simple, one-piece shipsuit. Yet there was no denying the efficiency with which she went about her job.

"Meta, aren't you a little young to be the pilot of an interstellar ship?"

"Am I?" She thought for a second. "I really don't know how old pilots are supposed to be. I have been piloting for about three years now and I'm almost twenty. Is that younger than usual?"

Jason opened his mouth—then laughed. "I suppose that all depends on what planet you're from. Some places you would have trouble getting licensed. But I'll bet things are different on Pyrrus. By their standards you must rank as an old lady."

"Now you're making a joke," Meta said serenely as she fed a figure into the calculator. "I've seen old ladies on some planets. They are wrinkled and have gray hair. I don't know how old they are, I asked one but she wouldn't tell me her age. But I'm sure they must be older than anyone on Pyrrus, no one looks like that there."

"I don't mean old that way," Jason groped for the right word. "Not old—but grown-up, mature. An adult."

"Everyone is grown-up," she answered. "At least soon after they leave the wards. And they do that when they're six. My first child is grown-up, and the second one would be, too, only he's dead. So I *surely* must be."

That seemed to settle the question for her, though Jason's thoughts jumped with the alien concepts and background, inherent behind her words.

Meta punched in the last setting, and the course tape began to chunk out of the case. She turned her attention back to Jason. "I'm glad you're aboard this trip, though I am sorry you are going to Pyyrus. But we'll have lots of time to talk. There are so many things I want to find out about other planets, and why people go around acting the way they do. Not at all like home where you *know* why people are doing things all the time." She frowned over the tape for a moment, then turned her attention back to Jason. "What is your home planet like?"

One after another the usual lies he told people came to his lips, and were pushed away. Why bother lying to a girl who really didn't care if you were serf or noble? To her there were only two kinds of people in the galaxy—Pyrrans, and the rest. For the first time since he had fled from Porgorstorsaand he found himself telling someone the truth of his origin.

"My home planet? Just about the stuffiest, dullest, deadend in the universe. You can't believe the destructive decay of a planet that is mainly

agrarian, caste-conscious and completely satisfied with its own boring existence. Not only is there no change —but no one *wants* change. My father was a farmer, so I should have been a farmer too—if I had listened to the advice of my betters. It was unthinkable, as well as forbidden for me to do anything else. And everything I wanted to do was against the law. I was fifteen before I learned to read —out of a book stolen from a noble school. After that there was no turning back. By the time I stowed aboard an offworld freighter at nineteen I must have broken every law on the planet. Happily. Leaving home for me was just like getting out of prison."

Meta shook her head at the thought. "I just can't imagine a place like that. But I'm sure I wouldn't like it there."

"I'm sure you wouldn't," Jason laughed. "So once I was in space, with no law-abiding talents or skills, I just wandered into one thing and another. In this age of technology I was completely out of place. Oh, I suppose I could have done well in some army, but I'm not so good at taking orders. Whenever I gambled I did well, so little by little I just drifted into it. People are the same everywhere, so I manage to make out well wherever I end up."

"I know what you mean about people being alike—but they are so *different,*" she said. "I'm not being clear at all, am I? What I mean is that at home I know what people will do and why they do it at the same time. People on all the other planets do act alike, as you said, yet I have very much trouble understanding why. For instance. I like to try the local food when we set down on a planet, and if there is time I always do. There are bars and restaurants near every spaceport so I go there. And I always have trouble with the men. They want to buy me drinks, hold my hand—"

"Well a single girl in those port joints has to expect a certain amount of interest from the men."

"Oh, I know that," she said. "What I don't understand is why they don't listen when I tell them I am not interested and to go away. They just laugh and pull up a chair, usually. But I have found that one thing works wherever I am. I tell them if they don't stop bothering me I'll break their arm."

"Does that stop them," Jason asked.

"No, of course not. But after I break their arm they go away. And the others don't bother me either. It's a lot of fuss to go through and the food is usually awful."

Jason didn't laugh. Particularly when he realized that this girl *could* break the arm of any spaceport thug in the galaxy. She was a strange mixture of naivete and strength, unlike anyone he had ever met before. Once again he realized that he *had* to visit the planet that produced people like her and Kerk.

"Tell me about Pyrrus," he asked. "Why is it that you and Kerk assume automatically that I will drop dead as soon as I land. What is the planet like?"

All the warmth was gone from her face now. "I can't tell you. You will have to see for yourself. I know that much after visiting some of the other worlds. Pyrrus is like nothing you galaxy people have ever experienced. You won't really believe it until it is too late. Will you promise me something?"

"No," he answered. "At least not until after I hear what it is and decide."

"Don't leave the ship when we land. You *should* be safe enough aboard, and I'll be flying a cargo out within a few weeks."

"I'll promise nothing of the sort. I'll leave when I want to leave." Jason knew there was logic in her words, but his back was up at her automatic superiority.

Meta finished the jump settings without another word. There was a tension in the room that prevented them both from talking.

It was the next shipday before he saw her again, then it was completely by accident. She was in the astrogation dome when he entered, looking up at the sparkling immensity of the jump sky. For the first time he saw her off duty, wearing something other than a shipsuit. This was a loose, soft robe that accentuated her beauty.

She smiled at him. "The stars are so wonderful," she said. "Come look." Jason came close to her and with an unthinking, almost automatic movement, put his arm around her. Neither did she resent it, for she covered his hand with hers. Then they kissed and it was just the way he knew it would be.

VI.

After that they were together constantly. When Meta was on duty he brought her meals to the bridge and they talked. Jason learned little more about her world since, by unspoken agreement, they didn't discuss it. He talked of the many planets he had visited and the people he had known. She was an appreciative listener and the time went quickly by. They enjoyed each other's company and it was a wonderful trip.

Then it ended.

There were fourteen people aboard the ship, yet Jason had never seen more than two or three at a time. There was a fixed rotation of duties that they followed in the ship's operation. When not on duty the Pyrrans minded their own business in an intense and self-sufficient manner. Only when the ship came out of jump and the PA barked *assembly* did they all get together.

Kerk was giving orders for the landing and questions were snapped back and forth. It was all technical and Jason didn't bother following it. It was the attitude of the Pyrrans that drew his attention. Their talk tended to be faster now as were their motions. They were like soldiers preparing for battle.

Their sameness struck Jason for the first time. Not that they looked alike or did the same things. It was the *way* they moved and reacted that caused

the striking similarity. They were like great, stalking cats. Walking fast, tense and ready to spring at all times, their eyes never still for an instant.

Jason tried to talk to Meta after the meeting, but she was almost a stranger. She answered in monosyllables and her eyes never met his, just brushed over them and went on. There was nothing he could really say, so she moved to leave. He started to put his hand out to stop her—then thought better of it. There would be other times to talk.

Kerk was the only one who took any notice of him—and then only to order him to an acceleration couch.

Meta's landings were infinitely worse than her take-offs. At least when she landed on Pyrrus. There were sudden acceleration surges in every direction. At one point there was a free fall that seemed endless. There were loud thuds against the hull that shook the framework of the ship. It was more like a battle than a landing and Jason wondered how much truth there was in that.

When the ship finally landed Jason didn't even know it. The constant 2-G's felt like deceleration. Only the descending moan of the ship's engines convinced him they were down. Unbuckling the straps and sitting up was an effort.

Two-G's don't seem that bad—at first. Walking required the same exertion as would carrying a man of his own weight on his shoulders. When Jason lifted his arm to unlatch the door it was heavy as two arms. He shuffled slowly toward the main lock.

They were all there ahead of him, two of the men rolling transparent cylinders from a nearby room. From their obvious weight and the way they changed when they bumped Jason knew they were made of transparent metal. He couldn't conceive any possible use for them. Empty cylinders a meter in diameter, longer than a man. One end solid, the other hinged and sealed. It wasn't until Kerk spun the sealing wheel and opened one of them that their use became apparent.

"Get in," Kerk said. "When you're locked inside you'll be carried out of the ship."

"Thank you, no," Jason told him. "I have no particular desire to make a spectacular landing on your planet sealed up like a packaged sausage."

"Don't be a fool," was Kerk's snapped answer. "We're *all* going out in these tubes. We've been away too long to risk the surface without reorientation."

Jason did feel a little foolish as he saw the others getting into tubes. He picked the nearest one, slid into it feet first, and pulled the lid closed. When he tightened the wheel in the center, it squeezed down against a flexible seal. Within a minute the CO_2 content in the closed cylinder went up and an air regenerator at the bottom hummed into life.

Kerk was the last one in. He checked the seals on all the other tubes first, then jabbed the air-lock override release. As it started cycling he quickly sealed himself in the remaining cylinder. Both inner and outer locks ground slowly open and dim light filtered in through sheets of falling rain.

For Jason, the whole thing seemed an anticlimax. All this preparation for absolutely nothing. Long, impatient minutes passed before a lift truck appeared driven by a Pyyran. He loaded the cylinders onto his truck like so much dead cargo. Jason had the misfortune to be buried at the bottom of the pile so he could see absolutely nothing when they drove outside.

It wasn't until the man-carrying cylinders had been dumped in a metal-walled room, that Jason saw his first native Pyrran life.

The lift truck driver was swinging a thick outer door shut when something flew in through the entrance and struck against the far wall. Jason's eye was caught by the motion, he looked to see what it was when it dropped straight down towards his face.

Forgetful of the metal cylinder wall, he flinched away. The creature struck the transparent metal and clung to it. Jason had the perfect opportunity to examine it in every detail.

It was almost too horrible to be believable. As though it were a bearer of death stripped to the very essentials. A mouth that split the head in two, rows of teeth, serrated and pointed. Leathery, claw-tipped wings, longer claws on the limbs that tore at the metal wall.

Terror rose up in Jason as he saw that the claws were tearing gouges in the transparent metal. Wherever the creature's saliva touched the metal

clouded and chipped under the assault of the teeth.

Logic said these were just scratches on the thick tube. They couldn't matter. But blind, unreasoning fear sent Jason curling away as far as he could. Shrinking inside himself, seeking escape.

Only when the flying creature began dissolving did he realize the nature of the room outside. Sprays of steaming liquid came from all sides, raining down until the cylinders were covered. After one last clash of its jaws, the Pyrran animal was washed off and carried away. The liquid drained away through the floor and a second and third shower followed.

While the solutions were being pumped away, Jason fought to bring his emotions into line. He was surprised at himself. No matter how frightful the creature had been, he couldn't understand the fear it could generate through the wall of the sealed tube. His reaction was all out of proportion to the cause. Even with the creature destroyed and washed out of sight it took all of his will power to steady his nerves and bring his breathing back to normal.

Meta walked by outside and he realized the sterilization process was finished. He opened his own tube and climbed wearily out. Meta and the others had gone by this time and only a hawk-faced stranger remained, waiting for him.

"I'm Brucco, in charge of the adaptation clinic. Kerk told me who you were. I'm sorry you're here. Now come along, I want some blood samples."

"Now I feel right at home," Jason said. "The old Pyrran hospitality." Brucco only grunted and stamped out. Jason followed him down a bare corridor into a sterile lab.

The double gravity was tiring, a constant drag on sore muscles. While Brucco ran tests on the blood sample, Jason rested. He had almost dozed off into a painful sleep when Brucco returned with a tray of bottles and hypodermic needles.

"Amazing," he announced. "Not an antibody in your serum that would be of any use on this planet. I have a batch of antigens here that will make you sick as a beast for at least a day. Take off your shirt."

"Have you done this often?" Jason asked. "I mean juice up an outlander so he can enjoy the pleasures of your world?"

Brucco jammed in a needle that felt like it grated on the bone. "Not often at all. Last time was years ago. A half-dozen researchers from some institute, willing to pay well for the chance to study the local life forms. We didn't say no. Always need more galaxy currency."

Jason was already beginning to feel light-headed from the shots. "How many of them lived?" he mumbled vaguely.

"One. We got him off in time. Made them pay in advance of course."

At first Jason thought the Pyrran was joking. Then he remembered they had very little interest in humor of

any kind. If one-half of what Meta and Kerk had told him was true, six to one odds weren't bad at all.

There was a bed in the next room and Brucco helped him to it. Jason felt drugged and probably was. He fell into a deep sleep and into the dream.

Fear and hatred mixed in equal parts and washed over him red hot. If this was a dream, he never wanted to sleep again. If it wasn't a dream, he wanted to die. He tried to fight up against it, but only sank in more deeply. There was no beginning and no end to the fear and no way to escape.

When consciousness returned Jason could remember no detail of the nightmare. Just the fear remained. He was soaked with sweat and ached in every muscle. It must have been the massive dose of shots, he finally decided, that and the brutal gravity. That didn't take the taste of fear out of his mouth, though.

Brucco stuck his head in the door then and looked Jason up and down. "Thought you were dead," he said. "Slept the clock around. Don't move, I'll get something to pick you up."

The pickup was in the form of another needle and a glassful of evil looking fluid. It settled his thirst, but made him painfully aware of gnawing hunger.

"Want to eat?" Brucco asked. "I'll bet you do. I've speeded up your metabolism so you'll build muscle faster. Only way you'll ever beat the gravity. Give you quite an appetite for a while though."

Brucco ate at the same time and Jason had a chance to ask some questions. "When do I get a chance to look around your fascinating planet? So far this trip has been about as interesting as a jail term."

"Relax and enjoy your food. Probably be months before you're able to go outside. If at all."

Jason felt his jaw hanging and closed it with a snap. "Could you possibly tell me why?"

"Of course. You will have to go through the same training course that our children take. It takes them six years. Of course it's their first six years of life. So you might think that you, as an adult, could learn faster. Then again they have the advantage of heredity. All I can say is you'll go outside these sealed buildings when you're ready."

Brucco had finished eating while he talked, and sat staring at Jason's bare arms with growing disgust. "The first thing we want to get you is a gun," he said. "It gives me a sick feeling to see someone without one."

Of course Brucco wore his own gun continually, even within the sealed buildings.

"Every gun is fitted to its owner and would be useless on anyone else," Brucco said. "I'll show you why." He led Jason to an armory jammed with deadly weapons. "Put your arm in this while I make the adjustments."

It was a boxlike machine with a pistol grip on the side. Jason clutched the grip and rested his elbow on a metal loop. Brucco fixed pointers that

touched his arm, then copied the results from the meters. Reading the figures from his list he selected various components from bins and quickly assembled a power holster and gun. With the holster strapped to his forearm and the gun in his hand, Jason noticed for the first time they were connected by a flexible cable. The gun fitted his hand perfectly.

"This is the secret of the power holster," Brucco said, tapping the flexible cable. "It is perfectly loose while you are using the weapon. But when you want it returned to the holster—" Brucco made an adjustment and the cable became a stiff rod that whipped the gun from Jason's hand and suspended it in midair.

"Then the return." The rod-cable whirred and snapped the gun back into the holster. "The drawing action is the opposite of this, of course."

"A great gadget," Jason said, "but how *do* I draw. Do I whistle or something for the gun to pop out."

"No, it is not sonic control," Brucco answered with a sober face. "It is much more precise than that. Here, take your left hand and grasp an imaginary gunbutt. Tense your trigger finger. Do you notice the pattern of the tendons in the wrist? Sensitive actuators touch the tendons in your right wrist. They ignore all patterns except the one that says *hand ready to receive gun.* After a time the mechanism becomes completely automatic. When you want the gun—it is in your hand. When you don't—it is in the holster."

Jason made grasping motions with his right hand, crooked his index finger. There was a sudden, smashing pain against his hand and a loud roar. The gun was in his hand—half the fingers were numb—and smoke curled up from the barrel.

"Of course there are only blank charges in the gun until you learn control. Guns are *always* loaded. There is no safety. Notice the lack of a trigger guard. That enables you to bend your trigger finger a slight bit more when drawing so the gun will fire the instant it touches your hand."

It was without a doubt the most murderous weapon Jason had ever handled, as well as being the hardest to manage. Working against the muscle burning ache of high gravity, he fought to control the devilish device. It had an infuriating way of vanishing into the holster just as he was about to pull the trigger. Even worse was the tendency to leap out before he was quite ready. The gun went to the position where his hand should be. If the fingers weren't correctly placed, they were crashed aside. Jason only stopped the practice when his entire hand was one livid bruise.

Complete mastery would come with time, but he could already understand why the Pyrrans never removed their guns. It would be like removing a part of your own body. The movement of gun from holster to hand was too fast for him to detect. It was certainly faster than the neutral current that shaped the hand into the gun-holding position. For all apparent purposes it was like having a lightning bolt in your fingertip. Point

the finger and *blamm,* there's the explosion.

Brucco had left Jason to practice alone. When his aching hand could take no more, he stopped and headed back towards his own quarters. Turning a corner he had a quick glimpse of a familiar figure going away from him.

"Meta! Wait for a second—I want to talk to you."

She turned impatiently as he shuffled up, going as fast as he could in the doubled gravity. Everything about her seemed different from the girl he had known on the ship. Heavy boots came as high as her knees, her figure was lost in bulky coveralls of some metallic fabric. The trim waist was bulged out by a belt of canisters. Her very expression was coldly distant.

"I've missed you," he said. "I hadn't realized you were in this building." He reached for her hand but she moved it out of his reach.

"What is it you want?" she asked.

"What is it I want!" he echoed with barely concealed anger. "This is Jason, remember me? We're friends. It *is* allowed for friends to talk without 'wanting' anything."

"What happened on the ship has nothing to do with what happens on Pyrrus." She started forward impatiently as she talked. "I have finished my reconditioning and must return to work. You'll be staying here in the sealed buildings so I won't be seeing you."

"Why don't you say 'with the rest of the children'—that's what your tone implies. And don't try walking out, there are some things we have to settle first—"

Jason made the mistake of putting out his hand to stop her. He didn't really know what happened next. One instant he was standing—the next he sprawled suddenly on the floor. His shoulder was badly bruised, and Meta had vanished down the corridor.

Limping back to his own room he cursed women in general and Meta in particular. Dropping onto his rock-hard bed he tried to remember the reasons that had brought him here in the first place. And weighed them against the perpetual torture of the gravity, the fear-filled dreams it inspired, the automatic contempt of these people for any outsider. He quickly checked the growing tendency to feel sorry for himself. By Pyrran standards he *was* soft and helpless. If he wanted them to think any better of him, he would have to change a good deal.

He sank into a fatigue-drugged sleep then, that was broken only by the screaming fear of his dreams.

VII.

In the morning Jason awoke with a bad headache and the feeling he had never been to sleep. As he took some of the carefully portioned stimulants that Brucco had given him, he wondered again about the combination of factors that filled his sleep with such horror.

"Eat quickly," Brucco told him when they met in the dining room.

"I can no longer spare you time for individual instruction. You will join the regular classes and take the prescribed courses. Only come to me if there is some special problem that the instructors or trainers can't handle."

The classes—as Jason should have expected—were composed of stern faced little children. With their compact bodies and no-nonsense mannerisms they were recognizably Pyrran. But they were still children enough to consider it very funny to have an adult in their classes. Jammed behind one of the tiny desks, the red-faced Jason did not think it was much of a joke.

All resemblance to a normal school ended with the physical form of the classroom. For one thing, every child —no matter how small—packed a gun. And the courses were all involved with survival. The only possible grade in a curriculum like this was one hundred per cent and students stayed with a lesson until they mastered it perfectly. No courses were offered in the normal scholastic subjects. Presumably these were studied after the child graduated survival school and could face the world alone. Which was a logical and cold-hearted way of looking at things. In fact, logical and cold-hearted could describe any Pyrran activity.

Most of the morning was spent on the operation of one of the medikits that strapped around the waist. This was a poison analyzer that was pressed over a puncture wound. If any toxins were present, the antidote was automatically injected on the site. Simple in operation but incredibly complex in construction. Since all Pyrrans serviced their own equipment—you could then only blame yourself if it failed—they had to learn the construction and repair of all the devices. Jason did much better than the child students, though the effort exhausted him.

In the afternoon he had his first experience with a training machine. His instructor was a twelve year old boy, whose cold voice didn't conceal his contempt for the soft off-worlder.

"All the training machines are physical duplicates of the real surface of the planet, corrected constantly as the life forms change. The only difference between them is the varying degree of deadliness. This first machine you will use is of course the one infants are put into—"

"You're too kind," Jason murmured. "Your flattery overwhelms me." The instructor continued, taking no notice of the interruption.

". . . Infants are put into as soon as they can crawl. It is real in substance, though completely deactivated."

Training machine was the wrong word, Jason realized as they entered through the thick door. This was a chunk of the outside world duplicated in an immense chamber. It took very little suspension of reality for him to forget the painted ceiling and artificial sun high above and imagine himself outdoors at last. The scene *seemed* peaceful enough. Though clouds

banking on the horizon threatened a violent Pyrran storm.

"You must wander around and examine things," the instructor told Jason. "Whenever you touch something with your hand, you will be told about it. Like this—"

The boy bent over and pushed his finger against a blade of the soft grass that covered the ground. Immediately a voice barked from hidden speakers.

"Poison grass. Boots to be worn at all times."

Jason kneeled and examined the grass. The blade was tipped with a hard, shiny hook. He realized with a start that every single blade of grass was the same. The soft green lawn was a carpet of death. As he straightened up he glimpsed something under a broadleafed plant. A crouching, scale-covered animal, whose tapered head terminated in a long spike.

"What's *that* in the bottom of my garden?" he asked. "You certainly give the babies pleasant playmates." Jason turned and realized he was talking to the air, the instructor was gone. He shrugged and petted the scaly monstrosity.

"Horndevil," the impersonal voice said from midair. "Clothing and shoes no protection. Kill it."

A sharp *crack* shattered the silence as Jason's gun went off. The horndevil fell on its side, keyed to react to the blank charge.

"Well . . . I *am* learning," Jason said, and the thought pleased him. The words *kill it* had been used by Brucco while teaching him to use the gun. Their stimulus had reached an unconscious level. He was aware of wanting to shoot only after he had heard the shot. His respect for Pyrran training techniques went up.

Jason spent a thoroughly unpleasant afternoon wandering in the child's garden of horror. Death was everywhere. While all the time the disembodied voice gave him stern advice in simple language. So he could do unto, rather than being done in. He had never realized that violent death could come in so many repulsive forms. *Everything* here was deadly to man—from the smallest insect to the largest plant.

Such singleness of purpose seemed completely unnatural. Why was this planet so alien to human life? He made a mental note to ask Brucco. Meanwhile he tried to find one life form that wasn't out for his blood. He didn't succeed. After a long search he found the only thing that when touched didn't elicit deadly advice. This was a chunk of rock that projected from a meadow of poison grass. Jason sat on it with a friendly feeling and pulled his feet up. An oasis of peace. Some minutes passed while he rested his gravity-weary body.

"ROTFUNGUS — DO NOT TOUCH!"

The voice blasted at twice its normal volume and Jason leaped as if he had been shot. The gun was in his hand, nosing about for a target. Only when he bent over and looked closely at the rock where he had been sitting, did he understand. There were flaky

gray patches that hadn't been there when he sat down.

"Oh you tricky devils!" he shouted at the machine. "How many kids have you frightened off that rock after they thought they had found a little peace!" He resented the snide bit of conditioning, but respected it at the same time. Pyrrans learned very early in life that there was no safety on this planet—except that which they provided for themselves.

While he was learning about Pyrrus he was gaining new insight into the Pyrrans as well.

VIII.

Days turned into weeks in the school, cut off from the world outside. Jason almost became proud of his ability to deal death. He recognized all the animals and plants in the nursery room and had been promoted to a trainer where the beasts made sluggish charges at him. His gun picked off the attackers with dull regularity. The constant, daily classes were beginning to bore him as well.

Though the gravity still dragged at him, his muscles were making great efforts to adjust. After the daily classes he no longer collapsed immediately into bed. Only the nightmares got worse. He had finally mentioned them to Brucco, who mixed up a sleeping potion that took away most of their effect. The dreams were still there, but Jason was only vaguely aware of them upon awakening.

By the time Jason had mastered all the gadgetry that kept the Pyrrans alive, he had graduated to a most realistic trainer that was only a hairbreadth away from the real thing. The difference was just in quality. The insect poisons caused swelling and pain instead of instant death. Animals could cause bruises and tear flesh, but stopped short of ripping off limbs. You couldn't get killed in this trainer, but could certainly come very close to it.

Jason wandered through this large and rambling jungle with the rest of the five-year-olds. There was something a bit humorous, yet sad, about their unchildlike grimness. Though they still might laugh in their quarters, they realized there was no laughing outside. To them survival was linked up with social acceptance and desirability. In this way Pyrrus was a simple black-and-white society. To prove your value to yourself and your world, you only had to stay alive. This had great importance in racial survival, but had very stultifying affects on individual personality. Children were turned into like-faced killers, always on the alert to deal out death.

Some of the children graduated into the outside world and others took their places. Jason watched this process for a while before he realized that all of those from the original group he had entered with were gone. That same day he looked up the chief of the adaptation center.

"Brucco," Jason asked, "how long do you plan to keep me in this kindergarten shooting gallery?"

"You're not being 'kept' here,"

Brucco told him in his usual irritated tone. "You will be here until you qualify for the outside."

"Which I have a funny feeling will be never. I can now field strip and reassemble every one of your blasted gadgets in the dark. I am a dead shot with this cannon. At this present moment, if I had to, I could write a book on the Complete Flora and Fauna of Pyrrus, and How to Kill It. Perhaps I don't do as well as my six-year old companions, but I have a hunch I do about as good a job now as I ever will. Is that true?"

Brucco squirmed with the effort to be evasive, yet didn't succeed. "I think, that is, you know you weren't born here, and—"

"Come, come," Jason said with glee, "a straight-faced old Pyrran like you shouldn't try to lie to one of the weaker races that specialize in that sort of thing. It goes without saying that I'll always be sluggish with this gravity, as well as having other inborn handicaps. I admit that. We're not talking about that now. The question is—will I improve with more training, or have I reached a peak of my own *development* now?"

Brucco sweated. "With the passage of time there will be improvement of course—"

"Sly devil!" Jason waggled a finger at him. "Yes or no, now. Will I improve *now* by more training *now?*"

"No," Brucco said, and still looked

troubled. Jason sized him up like a poker hand.

"Now let's think about that. I won't improve—yet I'm still stuck here. That's no accident. So you must have been ordered to keep me here. And from what I have seen of this planet, admittedly very little, I would say that Kerk ordered you to keep me here. Is that right?"

"He was only doing it for your own sake," Brucco explained, "trying to keep you alive."

"The truth is out," Jason said, "so let us now forget about it. I didn't come here to shoot robots with your offspring. So please show me the street door. Or is there a graduating ceremony first? Speeches, handing out school pins, sabers overhead—"

"Nothing like that," Brucco snapped. "I don't see how a grown man like you can talk such nonsense all the time. There is none of that, of course. Only some final work in the partial survival chamber. That is a compound that connects with the outside—really is a part of the outside—except the most violent life forms are excluded. And even some of those manage to find their way in once in a while."

"When do I go?" Jason shot the question.

"Tomorrow morning. Get a good night's sleep first. You'll need it."

There was one bit of ceremony attendant with the graduation. When Jason came into his office in the morning, Brucco slid a heavy gunclip across the table.

"These are live bullets," he said. "I'm sure you'll be needing them. After this your gun will always be loaded."

They came up to a heavy air lock, the only locked door Jason had seen in the center. While Brucco unlocked it and, threw the bolts a sober-faced eight-year-old with a bandaged leg limped up.

"This is Grif," Brucco said. "He will stay with you, wherever you go, from now on."

"My personal bodyguard?" Jason asked, looking down at the stocky child who barely reached his waist.

"You might call him that." Brucco swung the door open. "Grif tangled with a sawbird, so he won't be able to do any real work for a while. You yourself admitted that you will never be able to equal a Pyrran, so you should be glad of a little protection."

"Always a kind word, that's you Brucco," Jason said. He bent over and shook hands with the boy. Even the eight-year-olds had a bone-crushing grip.

The two of them entered the lock and Brucco swung the inner door shut behind them. As soon as it was sealed the outer door opened automatically. It was only partly open when Grif's gun blasted twice. Then they stepped out onto the surface of Pyrrus, over the smoking body of one of its animals.

Very symbolic, Jason thought. He was also bothered by the realization that he hadn't remembered to look for something coming in. Then, too, he couldn't even identify the

beast from its charred remains. He glanced around, hoping he would be able to fire first himself, next time.

This was an unfulfilled hope. The few beasts that came their way were always seen first by the boy. After an hour of this, Jason was so irritated that he blasted an evil looking thorn plant out of existence. He hoped that Grif wouldn't look too closely at it. Of course the boy did.

"That plant wasn't close. It is stupid to waste good ammunition on a plant," Grif said.

There was no real trouble during the day. Jason ended by being bored, though soaked by the frequent rainstorms. If Grif was capable of carrying on a conversation, he didn't show it. All Jason's gambits failed. The following day went the same way. On the third day, Brucco appeared and looked Jason carefully up and down.

"I don't like to say it, but I suppose you are as ready to leave now as you ever will be. Change the virus filter noseplugs every day. Always check boots for tears and metalcloth suiting for rips. Medikit supplies renewed once a week."

"And wipe my nose and wear my galoshes. Anything else?" Jason asked.

Brucco started to say something, then changed his mind. "Nothing that you shouldn't know well by now. Keep alert. And . . . good luck." He followed up the words with a crushing handshake that was totally unexpected. As soon as the numbness left Jason's hand, he and Grif went out through the large entrance lock.

IX.

Real as they had been, the training chambers had not prepared him for the surface of Pyrrus. There was the basic similarity of course. The feel of the poison grass underfoot and the erratic flight of a stingwing in the last instant before Grif blasted it. But these were scarcely noticeable in the crash of the elements around him.

A heavy rain was falling, more like a sheet of water than individual drops. Gusts of wind tore at it, hurling the deluge into his face. He wiped his eyes clear and could barely make out the conical forms of two volcanoes on the horizon, vomitting out clouds of smoke and flame. The reflection of this inferno was a sullen redness on the clouds that raced by in banks above them.

There was a rattle on his hard hat and something bounced off to splash to the ground. He bent over and picked up a hailstone as thick as his thumb. A sudden flurry of hail hammered painfully at his back and neck, he straightened hurriedly.

As quickly as it started the storm was over. The sun burned down, melting the hailstones and sending curls of steam up from the wet street. Jason sweated inside his armored clothing. Yet before they had gone a block it was raining again and he shook with chill.

Grif trudged steadily along, indifferent to the weather or the volcanoes that rumbled on the horizon and shook the ground beneath their feet.

Jason tried to ignore his discomfort and match the boy's pace.

The walk was a depressing one. The heavy, squat buildings loomed grayly through the rain, more than half of them in ruins. They walked on a pedestrian way in the middle of the street. The occasional armored trucks went by on both sides of them. The midstreet sidewalk puzzled Jason until Grif blasted something that hurtled out of a ruined building towards them. The central location gave them some chance to see what was coming. Suddenly Jason was very tired.

"Grif, this city of yours is sure down at the heels. I hope the other ones are in better shape."

"I don't know what you mean talking about heels. But there are no other cities. Some mining camps that can't be located inside the perimeter. But no other cities."

This surprised Jason. He had always visualized the planet with more than one city. There were a *lot* of things he didn't know about Pyrrus, he realized suddenly. All of his efforts since landing had been taken up with the survival studies. There were a number of questions he wanted to ask. But ask them of somebody other than his grouchy eight-year-old bodyguard. There was one person who would be best equipped to tell him what he wanted to know.

"Do you know Kerk," he asked the boy. "Apparently he's your ambassador to a lot of places, but his last name—"

"Sure, everybody knows Kerk. But he's busy, you shouldn't see him."

Jason shook a finger at him. "Minder of my body you may be. But minder of my soul you are not. What do you say I call the shots and you go along to shoot the monsters? O.K.?"

They took shelter from a sudden storm of fist-sized hailstones. Then, with ill grace, Grif led the way to one of the larger, central buildings. There were more people here and some of them even glanced at Jason for a minute, before turning back to their business. Jason dragged himself up two flights of stairs before they reached a door marked CO-ORDINATION AND SUPPLY.

"Kerk in here?" Jason asked.

"Sure," the boy told him. "He's in charge."

"Fine. Now you get a nice cold drink, or your lunch, or something, and meet me back here in a couple of hours. I imagine Kerk can do as good a job of looking after me as you can."

The boy stood doubtfully for a few seconds, then turned away. Jason wiped off some more sweat and pushed through the door.

There were a handful of people in the office beyond. None of them looked up at Jason or asked his business. Everything has a purpose on Pyrrus. If he came there—he must have had a good reason. No one would ever think to ask him what he wanted. Jason, used to the petty officialdom of a thousand worlds, waited for a few moments before he understood. There was only one other door. He shuffled over and opened it.

Kerk looked up from a desk strewed about with papers and ledgers. "I was wondering when you would show up," he said.

"A lot sooner if you hadn't prevented it," Jason told him as he dropped wearily into a chair. "It finally dawned on me that I could spend the rest of my life in your blood-thirsty nursery school if I didn't do something about it. So here I am."

"Ready to return to the 'civilized' worlds, now that you've seen enough of Pyrrus?"

"I am not," Jason said. "And I'm getting very tired of everyone telling me to leave. I'm beginning to think that you and the rest of the Pyrrans are trying to hide something."

Kerk smiled at the thought. "What could we have to hide? I doubt if any planet has as simple and one-directional an existence as ours."

"If that's true, then you certainly wouldn't mind answering a few direct questions about Pyrrus?"

Kerk started to protest, then laughed. "Well done. I should know better by now than to argue with you. What do you want to know?"

Jason tried to find a comfortable position on the hard chair, then gave up. "What's the population of your planet," he asked.

For a second Kerk hesitated, then said, "Roughly thirty thousand. That is not very much for a planet that has been settled this long, but the reason for that is obvious."

"All right, population thirty thousand," Jason said. "Now how about surface control of your planet. I was surprised to find out that this city within its protective wall—the perimeter—is the only one on the planet. Let's not consider the mining camps, since they are obviously just extensions of the city. Would you say then, that you people control more or less of the planet's surface than you did in the past?"

Kerk picked up a length of steel pipe from the desk, that he used as a paperweight, and toyed with it as he thought. The thick steel bent like rubber at his touch, as he concentrated on his answer.

"That's hard to say offhand. There must be records of that sort of thing, though I wouldn't know where to find them. It depends on so many factors—"

"Let's forget that for now then," Jason said. "I have another question that's really more relevant. Wouldn't you say that the population of Pyrrus is declining steadily, year after year?"

There was a sharp *twang* as the steel snapped in Kerk's fingers, the pieces dropping to the floor. He stood over Jason, his hands extended towards the smaller man, his face flushed and angry.

"Don't ever say that," he roared. "Don't let me ever hear you say that again!"

Jason sat as quietly as he could, talking slowly and picking out each word with care. His life hung in the balance.

"Don't get angry, Kerk. I meant no harm. I'm on your side, remem-

ber? I can talk to you because you've seen much more of the universe than the Pyrrans who have never left the planet. You are used to discussing things. You know that words are just symbols. We can talk and know you don't have to lose your temper over mere words—"

Kerk slowly lowered his arms and stepped away. Then he turned and poured himself a glass of water from a bottle on the desk. He kept his back turned to Jason while he drank.

Very little of the sweat that Jason wiped from his sopping face was caused by the heat in the room.

"I'm . . . sorry I lost my temper," Kerk said dropping heavily into his chair. "Doesn't usually happen. Been working hard lately, must have got my temper on edge." He made no mention of what Jason had said.

"Happens to all of us," Jason told him. "I won't begin to describe the condition my nerves were in when I hit this planet. I'm finally forced to admit that everything you said about Pyrrus is true. It is the most deadly spot in the system. And only native-born Pyrrans could possibly survive here. I can manage to fumble along a bit after my training, but I know I would never stand a chance on my own. You probably know I have an eight-year-old as a bodyguard. Gives a good idea of my real status here."

Anger suppressed, Kerk was back in control of himself now. His eyes narrowed in thought. "Surprises me to hear you say that. Never thought I would hear you admit that anyone could be better than you at anything. Isn't that why you came here? To prove that you were as good as any native-born Pyrran?"

"Score one for your side," Jason admitted. "I didn't think it showed that much. And I'm glad to see your mind isn't as musclebound as your body. Yes, I'll admit that was probably my main reason for coming, that and curiosity."

Kerk was following his own train of thoughts, and puzzled where they were leading him. "You came here to prove that you were as good as any native-born Pyrran. Yet now you admit that any eight-year-old can outdraw you. That just doesn't stack up with what I know about you. If you give with one hand, you must be taking back with the other. In what way do you still feel your natural superiority?"

Jason thought a long time before answering.

"I'll tell you," he finally said. "But don't snap my neck for it. I'm gambling that your civilized mind can control your reflexes. Because I have to talk about things that are strictly taboo on Pyrrus.

"In your people's eyes I'm a weakling because I come from off-world. Realize though, that this is also my strength. I can see things that are hidden from you by long association. You know, the old business of not being able to see the forest for the trees in the way." Kerk nodded agreement and Jason went on.

"To continue the analogy further, I landed from an airship, and at first

all I *could* see was the forest. To me certain facts are obvious. I think that you people know them too, only you keep your thoughts carefully repressed. They are hidden thoughts that are completely taboo. I am going to say one of them out loud now and hope you can control yourself well enough to not kill me."

Kerk's great hands tightened on the arms of his chair, the only sign that he had heard. Jason talked quietly, as smoothly and easily as a lancet probing into a brain.

"Human beings are losing the war on Pyrrus. There is no chance they can win. They could leave for another planet, but that wouldn't be victory. Yet, if they stay and continue this war, they only prolong a particularly bloody form of racial suicide. With each generation the population drops. Until eventually the planet will win."

One arm of Kerk's plastic and steel chair tore loose under the crushing grasp of his fingers. He didn't notice it. The rest of his body was rock-still and his eyes fixed on Jason.

Looking away from the fractured chair, Jason sought for the right words.

"This is not a real war, but a disastrous treating of symptoms. Like cutting off cancerous fingers one by one. The only result can be ultimate death. None of you seem to realize that. All you see are the trees. It has never occurred to you that you could treat the *causes* of this war and end it forever."

Kerk dropped the arm of the chair clattering to the floor. He sat up, astonished. "What the devil do you mean? You sound like a grubber."

Jason didn't ask what a grubber was—but he filed the name.

"Call me a Pyrran by adoption. I want this planet to survive as much as you do. I think this war can be ended by finding the *causes*—and changing them, whatever they are."

"You're talking nonsense," Kerk said. "This is just an alien world that must be battled. The causes are self-obvious facts of existence."

"No, they're not," Jason insisted. "Consider for a second. When you are away for any length of time from this planet, you must take a refresher course. To see how things have changed for the worse while you were gone. Well, that's a linear progression. If things get worse when you extend into the future, then they have to get better if you extend into the past. It is also good theory—though I don't know if the facts will bear me out—to say that if you extend it far enough into the past you will reach a time when mankind and Pyrrus were not at war with each other."

Kerk was beyond speech now, only capable of sitting and listening while Jason drove home the blows of inescapable logic.

"There is evidence to support this theory. Even you will admit that I, if I am no match for Pyrran life, am surely well versed in it. And all Pyrran flora and fauna I've seen have one thing in common. They're

not functional. *None* of their immense armory of weapons is used against each other. Their toxins don't seem to operate against Pyrran life. They are good only for dispensing death to Homo sapiens. And *that* is a physical impossibility. In the three hundred years that men have been on this planet, the life forms couldn't have naturally adapted in this manner."

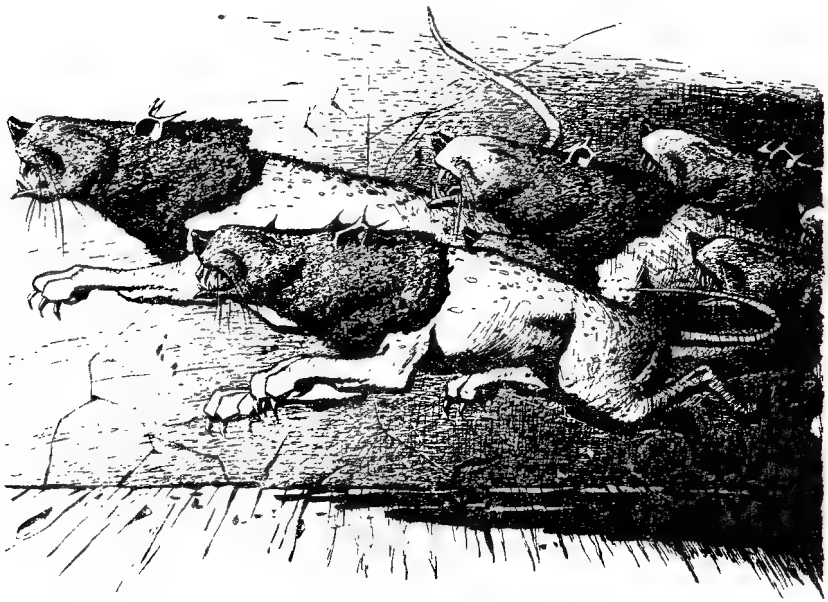
"But they *have* done it!" Kerk bellowed.

"You are so right," Jason told him calmly. "And if they have done it there must be some agency at work. Operating how—I have no idea. But something has caused the life on Pyrrus to declare war, and I'd like to find out what that something is. What was the dominant life form here when your ancestors landed?"

"I'm sure I wouldn't know," Kerk said. "You're not suggesting, are you, that there are sentient beings on Pyrrus other than those of human descent? Creatures who are organizing the planet to battle us?"

"I'm not suggesting it—you are. That means you're getting the idea. I have no idea what caused this change, but I would sure like to find out. Then see if it can be changed back. Nothing promised of course. You'll agree, though, that it is worth investigating."

Fist smacking into his palm, his heavy footsteps shaking the building, Kerk paced back and forth the length



of the room. He was at war with himself. New ideas fought old beliefs. It was so sudden—and so hard not to believe.

Without asking permission Jason helped himself to some chilled water from the bottle, and sank back into the chair, exhausted. Something whizzed in through the open window, tearing a hole in the protective screen. Kerk blasted it without changing stride, without even knowing he had done it.

The decision didn't take long. Geared to swift activity, the big Pyrran found it impossible not to decide quickly. The pacing stopped and a finger stabbed at Jason.

"I don't say you have convinced me, but I find it impossible to find a ready answer to your arguments. So until I do, we will have to operate as if they are true. Now what do you plan to do, what *can* you do?"

Jason ticked the points off on his fingers. "One, I'll need a place to live and work that is well protected. So instead of spending my energies on just remaining alive I can devote some study to this project. Two, I want someone to help me—and act as a bodyguard at the same time. And someone, please, with a little more scope of interest than my present watchdog. I would suggest Meta for the job."

"Meta?" Kerk was surprised. "She is a space pilot and defense-screen operator, what good could she possibly be on a project like this?"

"The most good possible. She has had experience on other worlds and can shift her point of view—at least a bit. And she must know as much about this planet as any other educated adult and can answer any questions I ask." Jason smiled. "In addition to which she is an attractive girl, whose company I enjoy."

Kerk grunted. "I was wondering if you would get around to mentioning that last reason. The others make sense though, so I'm not going to argue. I'll round up a replacement for her and have Meta sent here. There are plenty of sealed buildings you can use."

After talking to one of the assistants from the outer office, Kerk made some calls on the screen. The correct orders were quickly issued. Jason watched it all with interest.

"Pardon me for asking," he finally said. "But are you the dictator of this planet? You just snap your fingers and they all jump."

"I suppose it looks that way," Kerk admitted. "But that is just an illusion. No one is in complete charge on Pyrrus, neither is there anything resembling a democratic system. After all, our total population is about the size of an army division. Everyone does the job they are best qualified for. Various activities are separated into departments with the most qualified person in charge. I run Co-ordination and Supply, which is about the loosest category. We fill in the gaps between departments and handle procuring from off-planet."

Meta came in then and talked to Kerk. She completely ignored Jason's

presence. "I was relieved and sent here," she said. "What is it? Change in flight schedule?"

"You might call it that," Kerk said. "As of now you are dismissed from all your old assignments and assigned to a new department. Investigation and Research. That tired looking fellow there is your department head."

"A sense of humor," Jason said. "The only native-born one on Pyrrus. Congratulations, there's hope for the planet yet."

Meta glanced back and forth between them. "I don't understand. I can't believe it. I mean a new department—why?"

"I'm sorry," Kerk said. "I didn't mean to be cruel. I thought perhaps you might feel more at ease. What I said was true. Jason has a way—or may have a way—to be of immense value to Pyrrus. Will you help him?"

Meta had her composure back. And a little anger. "Do I have to? Is that an order? You know I have work to do. I'm sure you will realize it is more important than something a person from *off-planet* might imagine. He can't really understand—"

"Yes. It's an order." The snap was back in Kerk's voice. Meta flushed at the tone.

"Perhaps I can explain," Jason broke in. "After all the whole thing is my idea. But first I would like your co operation. Will you take the clip out of your gun and give it to Kerk?"

Meta looked frightened, but Kerk nodded in solemn agreement. "Just for a few minutes, Meta. I have my gun so you will be safe here. I think I know what Jason has in mind, and from personal experience I'm afraid he is right."

Reluctantly Meta passed over the clip and cleared the charge in the gun's chamber. Only then did Jason explain.

"I have a theory about life on Pyrrus, and I'm afraid I'll have to shatter some illusions when I explain. To begin with, the fact must be admitted that your people are slowly losing the war here and will eventually be destroyed—"

Before he was half through the sentence Meta's gun was directed between his eyes and she was wildly snapping the trigger. There was only hatred and revulsion in her expression. Kerk took her by the shoulders and sat her in his chair, before anything worse happened. It took a while before she could calm down enough to listen to Jason's words. It is not easy to have the carefully built up falsehoods of a lifetime shattered. Only the fact that she had seen something of other worlds enabled her to listen at all.

The light of unreason was still in her eyes when he had finished, telling her the things he and Kerk had discussed. She sat tensely, pushed forward against Kerk's hands, as if they were the only things that stopped her from leaping at Jason.

"Maybe that is too much to assimilate at one sitting," Jason said. "So let's put it in simpler terms. I believe we can find a reason for this unrelenting hatred of humans. Perhaps we

don't smell right. Maybe I'll find an essence of crushed Pyrran bugs that will render us immune when we rub it in. I don't know yet. But whatever the results, we *must* make the investigation. Kerk agrees with me on that."

Meta looked at Kerk and he nodded agreement. Her shoulders slumped in sudden defeat. She whispered the words.

"I . . . can't say I agree, or even understand all that you said. But I'll help you. If Kerk thinks that it is the right thing."

"I do," he said. "Now, do you want the clip back for your gun? Not planning to take any more shots at Jason?"

"That was foolish of me," she said coldly while she reloaded the gun. "I don't need a gun. If I had to kill him, I could do it with my bare hands."

"I love you, too," Jason smiled at her. "Are you ready to go now?"

"Of course." She brushed a fluffy curl of hair into place. "First we'll find a place where you can stay. I'll take care of that. After that the work of the new department is up to you."

X

There were empty rooms in one of the computer buildings. These were completely sealed to keep stray animal life out of the delicate machinery. While Meta checked a bedroll out of stores, Jason painfully dragged a desk, table and chairs in from a nearby empty office. When she returned with a pneumatic bed he instantly dropped on it with a grateful sigh Her lip curled a bit at his obvious weakness.

"Get used to the sight," he said. "I intend to do as much of my work as I can, while maintaining a horizontal position. You will be my strong right arm. And right now, Right Arm, I wish you could scare me up something to eat. I also intend to do most of my eating in the previously mentioned prone condition."

Snorting with disgust, Meta stamped out. While she was gone, Jason chewed the end of a stylus thoughtfully, then made some careful notes.

After they had finished the almost-tasteless meal he began the search.

"Meta, where can I find historical records of Pyrrus?"

"I've never heard of any . . . I really don't know."

"But there has to be something—*somewhere,*" he insisted. "Even if your present day culture devotes all of its time and energies to survival, you can be sure it wasn't always that way. All the time it was developing, people were keeping records, making notes. Now where do we look? Do you have a library here?"

"Of course," she said. "We have an excellent technical library. But I'm sure there wouldn't be any of *that* sort of thing there."

Trying not to groan, Jason stood up. "Let me be the judge of that. Just lead the way."

Operation of the library was completely automatic. A projected index gave the call number for any text

that had to be consulted. The tape was delivered to the charge desk thirty seconds after the number had been punched. Returned tapes were dropped through a hopper and refiled automatically. The mechanism worked smoothly.

"Wonderful," Jason said, pushing away from the index. "A tribute to technological ingenuity. Only it contains nothing of any value to us. Just reams of textbooks."

"What *else* should be in a library?" Meta sounded sincerely puzzled.

Jason started to explain, then changed his mind. "Later we will go into that," he said. "Much later. Now we have to find a lead. Is it possible that there are any tapes—or even printed books—that aren't filed through this machine?"

"It seems unlikely, but we could ask Poli. He lives here somewhere and is in charge of the library—filing new books and tending the machinery."

The single door into the rear of the building was locked, and no amount of pounding could rouse the caretaker.

"If he's alive, this should do it," Jason said. He pressed the out-of-order button on the control panel. It had the desired affect. Within five minutes the door opened and Poli dragged himself through it.

Death usually came swiftly on Pyrrus. If wounds slowed a man down, the ever-ready forces of destruction quickly finished the job. Poli was the exception to this rule. Whatever had attacked him originally had done an efficient job. Most of the lower part of his face was gone. His left arm was curled and useless. The damage to his body and legs had left him with the bare capability to stumble from one spot to the next.

Yet he still had one good arm as well as his eyesight. He could work in the library and relieve a fully fit man. How long he had been dragging the useless husk of a body around the building, no one knew. In spite of the pain that filled his red-rimmed, moist eyes, he had stayed alive. Growing old, older than any other Pyrran as far as Jason had seen. He tottered forward and turned off the alarm that had called him.

When Jason started to explain the old man took no notice. Only after the librarian had rummaged a hearing aid out of his clothes, did Jason realize he was deaf as well. Jason explained again what he searched for. Poli nodded and printed his answer on a tablet.

there are many old books—in the storerooms below

Most of the building was taken up by the robot filing and sorting apparatus. They moved slowly through the banks of machinery, following the crippled librarian to a barred door in the rear. He pointed to it. While Jason and Meta fought to open the age-incrusted bars, he wrote another note on his tablet.

not opened for many years, rats

Jason's and Meta's guns appeared reflexively in their hands as they read the message. Jason finished opening

the door by himself. The two native Pyrrans stood facing the opening gap. It was well they did. Jason could never have handled what came through that door.

He didn't even open it for himself. Their sounds at the door must have attracted all the vermin in the lower part of the building. Jason had thrown the last bolt and starting to pull on the handle—when the door was *pushed* open from the other side.

Open the gateway to hell and see what comes out. Meta and Poli stood shoulder to shoulder firing into the mass of loathsomeness that boiled through the door. Jason jumped to one side and picked off the occasional animal that came his way. The destruction seemed to go on forever.

Long minutes passed before the last clawed beast made its death rush. Meta and Poli waited expectantly for more, they were happily excited by this chance to deal destruction. Jason felt a little sick after the silent ferocious attack. A ferocity that the Pyrrans reflected. He saw a scratch on Meta's face where one of the beasts had caught her. She seemed oblivious to it.

Pulling out his medikit, Jason circled the piled bodies. Something stirred in their midst and a crashing shot plowed into it. Then he reached the girl and pushed the analyzer probes against the scratch. The machine clicked and Meta jumped as the antitoxin needle stabbed down. She realized for the first time what Jason was doing.

"Thank you," she said.

Poli had a powerful battery lamp, and by unspoken agreement, Jason carried it. Crippled though he was, the old man was still a Pyrran when it came to handling a gun. They slowly made their way down the refuse-laden stairs.

"What a stench," Jason grimaced.

At the foot of the stairs they looked around. There *had* been books and records there at one time. They had been systematically chewed, eaten and destroyed for decades.

"I like the care you take with your old books," Jason said disgustedly.

"They could have been of no importance," Meta said coolly, "or they would be filed correctly in the library upstairs."

Jason wandered gloomily through the rooms. Nothing remained of any value. Fragments and scraps of writing and printing. Never enough in one spot to bother collecting. With the toe of one armored boot, he kicked angrily at a pile of debris, ready to give up the search. There was a glint of rusty metal under the dirt.

"Hold this!" He gave the light to Meta and began scratching aside the rubble. A flat metal box with a dial lock built into it, was revealed.

"Why that's a log box!" Meta said, surprised.

"That's what I thought," Jason said.

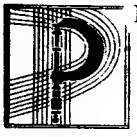
TO BE CONCLUDED

ATTENTION SAINT PATRICK

BY MURRAY LEINSTER

Illustrated by Bernklau

Legends do, of course, get somewhat distorted in the passage of time. In the future, the passage across space to other planets may cause a slight modification here and there...



RESIDENT O'Hanrahan of the planetary government of Eire listened unhappily to his official guest. He had to, because Sean O'Donohue was chairman of the Dail—of Eire on Earth—Committee on the Condition of the Planet Eire. He could cut off all support from the still-struggling colony if he chose. He was short and opinionated, he had sharp, gimlet eyes, he had bristling white hair that once had been red, and he was the grandfather of Moira O'Donohue, who'd traveled to Eire with him on a very uncomfortable spaceship. That last was a mark in his favor, but now he stood four-square upon the sagging porch of the presidential mansion of Eire, and laid down the law.

"I've been here three days," he told the president sternly, while his granddaughter looked sympathetic, "and I'm of the opinion that there's been shenanigans goin' on to keep this fine world from becomin' what it was meant for—a place for the people of Eire on Earth to emigrate to when there was more of them than Erin has room for. Which is now!"

"We've had difficulties—" began the president uneasily.

"This world should be ready!" snapped Sean O'Donohue accusingly. "It should be waitin' for the Caseys and Bradys and Fitzpatricks and other fine Erse people to move to and thrive on while the rest of the galaxy goes to pot with its new-fangled notions. That's the reason for this world's very existence. What set aside Erin on Earth, where our ancestors lived an' where their descendants are breathin' down each other's necks because there's so many of them? There was no snakes there! St. Patrick drove them out. What sets this world apart from all the other livable planets men have put down their smelly spaceships on? There's no snakes here! St. Patrick has great influence up in Heaven. He knew his fine Erse people would presently need more room than there was on Earth for them. So he'd a world set aside, and marked by the sign that no least trace of a serpent could exist on it. No creature like the one that blarneyed Mother Eve could be here! No—"

"Our trouble's been dinies," began the president apologetically.

But he froze. Something dark and sinuous and complacent oozed around the corner of the presidential mansion. The president of Eire sweated.

He recognized the dark object. He'd believed it safely put away in pleasant confinement until the Dail Committee went away. But it wasn't. It was Timothy, the amiable six-foot black snake who faithfully and cordially did his best to keep the presidential mansion from falling down. Without him innumerable mouse-sized holes, gnawed by mouse-sized dinies, would assuredly have brought about its collapse. The president was grateful, but he'd meant to keep Timothy out of sight. Timothy must have escaped and as a faithful snake, loyal to his duty, he'd wriggled straight back to the presidential mansion.

Like all Eire, he undoubtedly knew of the pious tradition that St. Patrick had brought the snakes to Eire, and he wasn't one to let St. Patrick down. So he'd returned and doubtless patrolled all the diny tunnels in the sagging structure. He'd cleaned out any miniature, dinosaurlike creatures who might be planning to eat some more nails. He now prepared to nap, with a clear conscience. But if Sean O'Donohue saw him—!

Perspiration stood out on President O'Hanrahan's forehead. The droplets joined and ran down his nose.

"It's evident," said the chairman of the Dail Committee, with truculence, "that ye're a pack of worthless, finaglin' and maybe even Protestant runnagades from the ways an' the traditions of your fathers! There is been shenanigans goin' on! I'll find 'em!"

The president could not speak, with Timothy in full view. But then what was practically a miracle took place. A diny popped out of a hole in the turf. He looked interestedly about. He was all of three inches long, with red eyes and a blue tail, and in every proportion he was a miniature of the extinct dinosaurs of Earth. But he was an improved model. The dinies of Eire were fitted by evolution—or Satan—to plague human settlers. They ate their crops, destroyed their homes, devoured their tools, and when other comestibles turned up they'd take care of them, too.

This diny surveyed its surroundings. The presidential mansion looked promising. The diny moved toward it. But Timothy—nap plans abandoned—flung himself at the diny like the crack of a whip. The diny plunged back into its hole. Timothy hurtled after it in pursuit. He disappeared.

The president of Eire breathed. He'd neglected that matter for some minutes, it seemed. He heard a voice continuing, formidably:

"And I know ye'll try to hide the shenanigans that've destroyed all the sacrifices Earth's made to have Eire a true Erse colony, ready for Erse lads and colleens to move to and have room for their children and their grandchildren too. I know ye'll try! But unless I do find out—not another bit of help will this colony get from Earth! No more tools! No more machinery that ye can't have worn out! No more provisions that ye

should be raisin' for yourselves! Your cold-storage plant should be bulgin' with food! It's near empty! It will not be refilled! And even the ship that we pay to have stop here every three months, for mail—no ship!"

"It's the dinies," said the president feebly. "Theyre a great trouble to us, sir. They're our great handicap."

"Blather and nonsense!" snapped Sean O'Donohue. "They're no bigger than mice! Ye could've trapped 'em! Ye could've raised cats! Don't tell me that fancy-colored little lizards could hinder a world especially set aside by the intercession of St. Patrick for the Erse people to thrive on! The token's plain! There's no snakes! And with such a sign to go by, there must've been shenanigans goin' on to make things go wrong! And till those shenanigans are exposed an' stopped—there'll be no more help from Earth for ye blaggards!"

He stamped his way into the presidential mansion. The door slammed shut. Moira, his granddaughter, regarded the president with sympathy. He looked bedraggled and crushed. He mopped his forehead. He did not raise his eyes to her. It was bad enough to be president of a planetary government that couldn't even pay his salary, so there were patches in his breeches that Moira must have noticed. It was worse that the colony was, as a whole, entirely too much like the remaining shanty areas in Eire back on Earth. But it was tragic that it was ridiculous for any man on Eire to ask a girl from Earth to join him on so unpromising a planet.

He said numbly:

"I'll be wishing you good morning, Moira."

He moved away, his chin sunk on his breast. Moira watched him go. She didn't seem happy. Then, fifty yards from the mansion, a luridly colored something leaped out of a hole. It was a diny some eight inches long, in enough of a hurry to say that something appalling was after it. It landed before the president and took off again for some far horizon. Then something sinuous and black dropped out of a tree upon it and instantly violent action took place in a patch of dust. A small cloud arose. The president watched, with morbid interest, as the sporting event took place.

Moira stared, incredulous. Then, out of the hole from which the diny had leaped, a dark round head appeared. It could have been Timothy. But he saw that this diny was disposed of. That was that. Timothy—if it was Timothy—withdrew to search further among diny tunnels about the presidential mansion.

Half an hour later the president told the solicitor general of Eire about it. He was bitter.

"And when it was over, there was Moira starin' dazed-like from the porch, and the be-damned snake picked up the diny it'd killed and started off to dine on it in private. But I was in the way. So the snake waited, polite, with the diny in its

mouth, for me to move on. But it looked exactly like he'd brought over the diny for me to admire, like a cat'll show dead mice to a person she thinks will be interested!"

"Holy St. Patrick!" said the solicitor general, appalled. "What'll happen now?"

"I reason," said the president morbidly, "she'll tell her grandfather, and he'll collar somebody and use those gimlet eyes on him and the poor *omadhoum* will blurt out that on Eire here it's known that St. Patrick brought the snakes and is the more reverenced for it. And that'll mean there'll be no more ships or food or tools from Earth, and it'll be lucky if we're evacuated before the planet's left abandoned."

The solicitor general's expression became one of pure hopelessness.

"Then the jig's up," he said gloomily. "I'm thinkin', Mr. President, we'd better have a cabinet meeting on it."

"What's the use," demanded the president. "I won't leave! I'll stay here, alone though I may be. There's nothing left in life for me anywhere, but at least, as the only human left on Eire I'll be able to spend the rest of my years knockin' dinies on the head for what they've done!" Then, suddenly, he bellowed. "Who let loose the snakes! I'll have his heart's blood—"

The Chancellor of the Exchequer peered around the edge of the door into the cabinet meeting room. He saw the rest of the cabinet of Eire assembled. Relieved, he entered. Something stirred in his pocket and he pulled out a reproachful snake. He said:

"Don't be indignant, now! You were walkin' on the public street. If Sean O'Donohue had seen you—" He added to the other members of the cabinet: "The other two members of the Dail Committee seem to be good, honest, drinkin' men. One of them now—the shipbuilder I think it was —wanted a change of scenery from lookin' at the bottom of a glass. I took him for a walk. I showed him a bunch of dinies playin' leapfrog tryin' to get one of their number up to a rain spout so he could bite off pieces and drop 'em down to the rest. They were all colors and it was quite somethin' to look at. The committeeman—good man that he is!—staggered a bit and looked again and said grave that whatever of evil might be said of Eire, nobody could deny that its whisky had imagination!"

He looked about the cabinet room. There was a hole in the baseboard underneath the sculptured coat of arms of the colony world. He put the snake down on the floor beside the hole. With an air of offended dignity, the snake slithered into the dark opening.

"Now—what's the meeting for?" he demanded. "I'll tell you immediate that if money's required it's impractical."

President O'Hanrahan said morbidly:

"'Twas called, it seems, to put the

curse o' Cromwell on whoever let the black snakes loose. But they'd been cooped up, and they knew they were not keepin' the dinies down, and they got worried over the work they were neglectin'. So they took turns diggin', like prisoners in a penitentiary, and presently they broke out and like the faithful creatures they are they set anxious to work on their backlog of diny-catchin'. Which they're doin'. They've ruined us entirely, but they meant well."

The minister of Information asked apprehensively: "What will O'Donohue do when he finds out they're here?"

"He's not found out—yet," said the president without elation. "Moira didn't tell him. She's an angel! But he's bound to learn. And then if he doesn't detonate with the rage in him, he'll see to it that all of us are murdered—slowly, for treason to the Erse and blasphemy directed at St. Patrick." Then the president said with a sort of yearning pride: "D'ye know what Moira offered to do? She said she'd taken biology at college, and she'd try to solve the problem of the dinies. The darlin'!"

"Bein' gathered together," observed the chief justice, "we might as well try again to think of somethin' plausible."

"We need a good shenanigan," agreed the president unhappily. "But what could it be? Has anybody the trace of an idea?"

The cabinet went into session. The trouble was, of course, that the Erse colony on Eire was a bust. The first colonists built houses, broke ground, planted crops — and encountered dinies. Large ones, fifty and sixty feet long, with growing families. They had thick bodies with unlikely bony excrescences, they had long necks which ended in very improbable small heads, and they had long tapering tails which would knock over a man or a fence post or the corner of a house, impartially, if they happened to swing that way. They were not bright.

That they ate the growing crops might be expected, though cursed. But they ate wire fences. The colonists at first waited for them to die of indigestion. But they digested the fences. Then between bales of more normal foodstuffs they browsed on the corrugated-iron roofs of houses. Again the colonists vengefully expected dyspepsia. They digested the roofs, too. Presently the lumbering creatures nibbled at axes—the heads, not the handles. They went on to the plows. When they gathered sluggishly about a ground-car and began to lunch on it, the colonists did not believe. But it was true.

The dinies' teeth weren't mere calcium phosphate, like other beasts. An amateur chemist found out that they were an organically deposited boron carbide, which is harder than any other substance but crystallized carbon—diamond. In fact, diny teeth, being organic, seemed to be an especially hard form of boron carbide. Dinies could chew iron. They could masticate steel. They could grind up and swallow anything but tool-steel

reinforced with diamond chips. The same amateur chemist worked it out that the surface soil of the planet Eire was deficient in iron and ferrous compounds. The dinies needed iron. They got it.

The big dinies were routed by burning torches in the hands of angry colonists. When scorched often enough, their feeble brains gathered the idea that they were unwelcome. They went lumbering away.

They were replaced by lesser dinies, approximately the size of kangaroos. They also ate crops. They also hungered for iron. To them steel cables were the equivalent of celery, and they ate iron pipe as if it were spaghetti. The industrial installations of the colony were their special targets. The colonists unlimbered guns. They shot the dinies. Ultimately they seemed to thin out. But once a month was shoot-a-diny day on Eire, and the populace turned out to clear the environs of their city of Tara.

Then came the little dinies. Some were as small as two inches in length. Some were larger. All were cute. Colonists' children wanted to make pets of them until it was discovered that miniature they might be, but harmless they were not. Tiny diny-teeth, smaller than the heads of pins, were still authentic boron carbide. Dinies kept as pets cheerily gnawed away wood and got at the nails of which their boxes were made. They ate the nails.

Then, being free, they extended their activities. They and their friends tunneled busily through the colonists' houses. They ate nails. They ate screws. They ate bolts, nuts, the nails out of shoes, pocket knives and pants buttons, zippers, wire staples and the tacks out of upholstery. Gnawing even threads and filings of metal away, they made visible gaps in the frames and moving parts of farm tractors.

Moreover, it appeared that their numbers previously had been held down by the paucity of ferrous compounds in their regular diet. The lack led to a low birth rate. Now, supplied with great quantities of iron by their unremitting industry, they were moved to prodigies of multiplication.

The chairman of the Dail Committee on the Condition of the Planet Eire had spoken of them scornfully as equal to mice. They were much worse. The planetary government needed at least a pied piper or two, but it tried other measures. It imported cats. Descendants of the felines of Earth still survived, but one had only to look at their frustrated, neurotic expressions to know that they were failures. The government set traps. The dinies ate their springs and metal parts. It offered bounties for dead dinies. But the supply of dinies was inexhaustible, and the supply of money was not. It had to be stopped.

Then upon the spaceport of Eire a certain Captain Patrick Brannicut, of Boston, Earth, descended. It was his second visit to Eire. On the first he'd learned of the trouble. On his second

he brought what still seemed the most probable solution. He landed eighteen hundred adult black snakes, two thousand teen-agers of the same species, and two crates of soft-shelled eggs he guaranteed to hatch into fauna of the same kind. He took away all the cash on the planet. The government was desperate.

But the snakes chased dinies with enthusiasm. They pounced upon dinies while the public watched. They lay in wait for dinies, they publicly digested dinies, and they went pouring down into any small hole in the ground from which a diny had appeared or into which one vanished. They were superior to traps. They did not have to be set or emptied. They did not need bait. They were self-maintaining, and even self-reproducing—except that snakes when overfed tend to be less romantic than when hungry. In ten years a story began—encouraged by the Ministry of Information—to the effect that St. Patrick had brought the snakes to Eire, and it was certain that if they didn't wipe out the dinies, they assuredly kept the dinies from wiping out the colony. And the one hope of making Eire into a splendid new center of Erse culture and tradition—including a reverence for St. Patrick—lay in the belief that some day the snakes would gain a permanent upper hand.

Out near the spaceport there was an imported monument to St. Patrick. It showed him pointing somewhere with his bishop's staff, while looking down at a group of snakes near his feet. The sculptor intended to portray St. Patrick telling the snakes to get the hell out of Eire. But on Eire it was sentimentally regarded as St. Patrick telling the snakes to go increase and multiply.

But nobody dared tell that to Sean O'Donohue! It was past history, in a way, but also it was present fact. On the day of the emergency cabinet meeting it was appalling fact. Without snakes the planet Eire could not continue to be inhabited, because of the little dinies. But the Republic of Eire on Earth would indignantly disown any colony that had snakes in it. And the colony wasn't ready yet to be self-supporting. The cabinet discussed the matter gloomily. They were too dispirited to do more. But Moira—the darlin'—did research.

It was strictly college-freshman-biology-lab research. It didn't promise much, even to her. But it gave her an excuse to talk anxiously and hopefully to the president when he took the Dail Committee to McGillicuddy Island to look at the big dinies there, while the populace tried to get the snakes out of sight again.

Most of the island lay two miles off the continent named for County Kerry back on Earth. At one point a promontory lessened the distance greatly, and at one time there'd been a causeway there. It had been built with great pains, and with pains destroyed.

The president explained as the boat bearing the committee neared the island.

"The big dinies," he said sadly, "trampled the fences and houses and ate up the roofs and tractors. It could not be borne. They could be driven away with torches, but they came back. They could be killed, but the people could only dispose of so many tons of carcasses. Remember, the big males run sixty feet long, and the

most girlish females run forty. You wouldn't believe the new-hatched babies! They were a great trial, in the early days!"

Sean O'Donohue snorted. He bristled. He and the other two of the committee had been dragged away from the city of Tara. He suspected shenanigans going on behind his back. They did. His associates looked bleary-eyed. They'd been treated cordially, and they were not impassioned leaders of the Erse people, like the O'Donohue. One of them was a ship builder and the other a manufacturer of precision machinery, elected to the Dail for no special reason. They'd come on this junket partly to get away from their troubles and their wives. The shortage of high-precision tools was a trouble to both of them, but they were forgetting it fully.

"So the causeway was built," explained President O'Hanrahan. "We drove the big beasts over, and rounded up all we could find—drivin' them with torches—and then we broke down the causeway. So there they are on McGillicuddy Island. They don't swim."

The boat touched ground—a rocky, uninviting shore. The solicitor general and the Chancellor of the Exchequer hopped ashore. They assisted the committee members to land. They moved on. The president started to follow but Moira said anxiously:

"Wait a bit. I've something to tell you. I . . . said I'd experiment with the dinies. I did. I learned something."

"Did you now?" asked the president. His tone was at once admiration and despair. "It's a darlin' you are, Moira, but—"

"I . . . wondered how they knew where iron was," said Moira hopefully, "and I found out. They smell it."

"Ah, they do, do they!" said the president with tender reverence. "But I have to tell you, Moira, that—"

"And I proved it!" said Moira, searching his face with her eyes. "If you change a stimulus and a specimen reacts, then its reaction is to the change. So I made the metal smell stronger."

President O'Hanrahan blinked at her.

"I . . . heated it," said Moira. "You know how hot metal smells. I heated a steel hairpin and the dinies came out of holes in the wall, right away! The smell drew them. It was astonishing!"

The president looked at her with a strange expression.

"That's . . . that's all I had time to try," said Moira. "It was yesterday afternoon. There was an official dinner. I had to go. You remember! So I locked up the dinies—"

"Moira darlin'," said President O'Hanrahan gently, "you don't lock up dinies. They gnaw through steel safes. They make tunnels and nests in electric dynamos. You don't lock up dinies, darlin'!"

"But I did!" she insisted. "They're still locked up. I looked just before we started for here!"

The president looked at her very unhappily.

"There's no need for shenanigans between us, Moira!" Then he said: "Couldn't ye be mistaken? Keepin' dinies locked up is like bottlin' moonlight or writin' down the color of Moira O'Donohue's eyes or—" He stopped. "How did ye do it?"

"The way you keep specimens," she told him. "When I was in college we did experiments on frogs. They're cold-blooded just like dinies. If you let them stay lively, they'll wear themselves out trying to get away. So you put them in a refrigerator. In the vegetable container. They don't freeze there, but they do . . . get torpid. They just lay still till you let them warm up again. To room temperature."

The president of the planet Eire stared. His mouth dropped open. He blinked and blinked and blinked. Then he whooped. He reached forward and took Moira into his arms. He kissed her thoroughly.

"Darlin'!' he said in a broken voice. "Sit still while I drive this boat back to the mainland! I've to get back to Tara immediate! You've done it, my darlin', you've done it, and it's a great day for the Irish! It's even a

great day for the Erse! It's your birthday will be a planetary holiday long after we're married and our grandchildren think I'm as big a nuisance as your grandfather Sean O'Donohue! It's a fine grand marriage we'll be havin'—"

He kissed her again and whirled the boat about and sent it streaking for the mainland. From time to time he whooped. Rather more frequently, he hugged Moira exuberantly. And she tended to look puzzled, but she definitely looked pleased.

Behind them, of course, the Committee of the Dail on the Condition of the Planet Eire explored McGillicuddy Island. They saw the big dinies—sixty-footers and fifty-footers and lesser ones. The dinies ambled aimlessly about the island. Now and again they reached up on elongated, tapering necks with incongruously small heads on them, to snap off foliage that looked a great deal like palm leaves. Now and again, without enthusiasm, one of them stirred the contents of various green-scummed pools and apparently extracted some sort of nourishment from it. They seemed to have no intellectual diversions. They were not interested in the visitors, but one of the committee members—not Moira's grandfather—shivered a little.

"I've dreamed about them," he said plaintively, "but even when I was dreamin' I didn't believe it!"

Two youthful dinies—they would weigh no more than a couple of tons apiece—engaged in languid conflict. They whacked each other with blows which would have destroyed elephants. But they weren't really interested. One of them sat down and looked bored. The other sat down. Presently, reflectively, he gnawed at a piece of whitish rock. The gnawing made an excruciating sound. It made one's flesh crawl. The diny dozed off. His teeth had cut distinct, curved grooves in the stone. The manufacturer of precision machinery —back on Earth—turned pale.

"L-let's get out of here!"

The committee and the two members of the cabinet returned to the shore. There was no boat. It was far away, headed for the mainland.

"Shenanigans!" said Sean O'Donohue in a voice that would have curdled sulphuric acid. "I warned him no shenanigans! The dirty young bog-trotter's left us here to be eaten up by the beasts!"

The solicitor general said hastily: "Divvil a bit of it, sir. We're his friends and he left us in the same boat—no, he left us out of the same boat. It must've been that something important occurred to him—"

But it was not convincing. It seemed highly unconvincing, later, because some long-delayed perception produced a reaction in the dinies' minuscule brains. They became aware of their visitors. They appeared, in a slow-motion fashion, to become interested in them. Slowly, heavily, numbly, they congregated about them—the equivalent of a herd of several hundred elephants of all the colors of the rainbow, with small

heads wearing plaintive but persistent expressions. Long necks reached out hopefully.

"The devil!" said the Chancellor of the Exchequer, fretfully. "I'm just thinkin'. You've iron in your shoes and mainsprings in your watches and maybe pocket knives in your pockets. The dinies have a longin' for iron, and they go after it. They'll eat anything in the world that's got the barest bit of a taste of iron in it! Oh, it's perfectly all right, of course, but ye'll have to throw stones at them till the boat comes back. Better, find a good stout stick to whack them with. Only don't let 'em get behind ye!"

"Ye will?" roared the solicitor general, vengefully. "Take that!" *Whack!* "Tryin' to take somethin' out of the gentleman's hip pocket an' aimin' to grab the rump beyond it just to make sure!"

Whack! A large head moved plaintively away. But another reached hopefully forward, and another. The dinies were not bright. The three committeemen and two members of the cabinet were thigh-deep in water when the boat came back. They still whacked valorously if wearily at intrusive diny heads. They still had made no progress in implanting the idea that the dinies should go away.

The men from the mainland hauled them into the boat. They admitted that the president had returned to Tara. Sean O'Donohue concluded that he had gone back to supervise some shenanigans. He had. On the way to the mainland Sean O'Donohue ground his teeth. On arrival he learned that the president had taken Moira with him. He ground his teeth. "Shenanigans!" he cried hoarsely. "After him!" He stamped his feet. His fury was awe-inspiring. When the ground-car drivers started back to Tara, Sean O'Donohue was a small, rigid embodiment of raging death and destruction held only temporarily in leash.

On the way, even his companions of the committee were uneasy. But one of them, now and again, brought out a small piece of whitish rock and regarded it incredulously. It was not an unusual kind of rock. It was ordinary milky quartz. But it had tooth marks on it. Some diny, at some time, had gnawed casually upon it as if it were soft as cheese.

Faint cheering could be heard in the distance as the ground-cars carrying the committee neared the city of Tara. To those in the vehicles, it seemed incredible that anybody should dare to rejoice within at least two light-years of Sean O'Donohue as he was at this moment. But the cheering continued. It grew louder as the cars entered a street where houses stood side by side. But there came a change in the chairman of the Dail Committee, too.

The cars slowed because the pavement was bad to nonexistent. Trees lined the way. An overhanging branch passed within two yards of Moira's grandfather. Something hung on it in a sort of graceful drapery. It was a black snake. On Eire! Sean

O'Donohue saw it. It took no notice of him. It hung comfortably in the tree and looked with great interest toward the sounds of enthusiasm.

The deathly pallor of Sean O'Donohue changed to pale lavender. He saw another black snake. It was climbing down a tree trunk with a purposeful air, as if intending to look into the distant uproar. The ground-cars went on, and the driver of the lead car swerved automatically to avoid two black snakes moving companionably along together toward the cheering. One of them politely gave the ground-car extra room, but paid no other attention to it. Sean O'Donohue turned purple.

Yet another burst of cheering. The chairman of the Dail Committee almost, but not quite, detonated like a fission bomb. The way ahead was blocked by people lining the way on a cross street. The cars beeped, and nobody heard them. With stiff, jerky motions Sean O'Donohue got out of the enforcedly stopped car. It had seemed that he could be no more incensed, but he was. Within ten feet of him a matronly black snake moved along the sidewalk with a manner of such assurance and such impeccable respectability that it would have seemed natural for her to be carrying a purse.

Sean O'Donohue gasped once. His face was then a dark purple. He marched blindly into the mob of people before him. Somehow, the people of Tara gave way. But the sides of this cross street were crowded. Not only was all the population out and waiting to cheer, but the trees were occupied. By black snakes. They hung in tasteful draperies among the branches, sometimes two or three together. They gazed with intense interest at the scene below them. The solicitor general, following Sean O'Donohue, saw a black snake wriggling deftly between the legs of the packed populace—packed as if to observe a parade—to get a view from the very edge of the curb. The Chancellor of the Exchequer came apprehensively behind the solicitor general.

Sean O'Donohue burst through the ranks of onlookers. He stalked out onto the empty center of the street. He looked neither to right nor left. He was headed for the presidential mansion, there to strangle President O'Hanrahan in the most lingering possible manner.

But there came a roar of rejoicing which penetrated even his single-tracked, murder-obsessed brain. He turned, purple-face and explosive, to see what the obscene sound could mean.

He saw. The lean and lanky figure of the chief justice of the supreme court of the Planet Eire came running down the street toward him. He bore a large slab of sheet-iron.

As he ran, he played upon it the blue flame of a welding torch. The smell of hot metal diffused behind him. The chief justice ran like a deer. But he wasn't leaving anything behind but the smell. Everything else was close on his heels.

A multicolored, multitudinous, swarming tide of dinies filled the

highway from gutter to gutter. From the two-inch dwarfs to the purple-striped variety which grew to eight inches and sometimes fought cats, the dinies were in motion. They ran in the wake of the chief justice, enthralled and entranced by the smell of hot sheet iron. They were fascinated. They were bemused. They were aware of nothing but that ineffable fragrance. They hopped, ran, leaped, trotted and galloped in full cry after the head of the planet's supreme court.

He almost bumped into the stunned Sean O'Donohue. As he passed, he cried: "Duck, man! The dinies are comin' tra-la, tra-la!"

But Sean O'Donohue did not duck. He was fixed, stuck, paralyzed in his tracks. And the dinies arrived. They ran into him. He was an obstacle. They played leapfrog over each other to surmount him. He went down and was merely a bump in the flowing river of prismatic colorings which swarmed after the racing chief justice.

But there was a limit to things. This was not the first such event in Tara, this day. The dinies, this time, filled no more than a block of the street. They swarmed past him, they raced on into the distance, and Sean O'Donohue struggled to a sitting position.

His shoes were shreds. Dinies had torn them swiftly apart for the nails in them. His garters were gone. Dinies had operated on his pants to get at the metal parts. His pockets were ripped. The bright metal buttons of his coat were gone. His zippers had vanished. His suspenders dangled without any metal parts to hold them together, nor were there any pants buttons for them to hold onto. He opened his mouth, and closed it, and opened it again and closed it. His expression was that of a man in delirium.

And, even before the Chancellor of the Exchequer and the solicitor general could lift him gently and bear him away, there came a final catastrophe, for the O'Donohue. The snakes who had watched events from the curbs, as well as those which had gazed interestedly from aloft, now began to realize that this was an affair which affected them. They came out and began to follow the vanishing procession, very much as small dogs and little boys pursue a circus parade. But they seemed to talk uneasily to each other as they flowed past Sean O'Donohue, sitting in the dust of the street, all his illusions vanished and all his hopes destroyed.

But the people of Tara did not notice. They cheered themselves hoarse.

President O'Hanrahan held himself with some dignity in the tumbledown reception hall of the presidential mansion. Moira gazed proudly at him. The two still-active members of the Dail Committee looked uncomfortably around them. The cabinet of Eire was assembled.

"It's sorry I am," said the President of Eire, "to have to issue a defiance to the Eire on Earth we owe so much to. But it can't be helped. We

had to have the black creatures to keep the dinies from eating us out of house and home altogether. We've been fightin' a rear-guard battle, and we needed them. In time we'd have won with their help, but time we did not have. So this mornin' Moira told me what she'd done yesterday. The darlin' had used the brains God gave her, and maybe holy St. Patrick put a flea in her ear. She figured out that dinies must find metal by its smell, and if its smell was made stronger by simple heatin' they'd be unable to resist it. And it was so. Ye saw the chief justice runnin' down the street with all the dinies after him."

The two members of the committee nodded.

"He was headin'," said the president, "for the cold-storage plant that Sean O'Donohue had twitted me was empty of the provisions we'd had to eat up because of the dinies. It's no matter that it's empty now though. We can grow victuals in the fields from now on, because now the cold rooms are packed solid with dinies that ran heedless into a climate they are not used to an' fell—what was the word, Moira darlin'?"

"Torpid," said Moira, gazing at him.

"Torpid," agreed the president. "From now on when there's too many dinies we can send somebody runnin' through the streets with a hot plate to call them into cold storage. We've pied pipers at will, to help out the black creatures that've done so much for us. If we've offended Eire on Earth, by havin' the black creatures to help us, we're sorry. But we had to—till Moira and doubtless St. Patrick gave us the answer ye saw today. If we're disowned, bedamned if we don't hang on! We can feed ourselves now. We can feed some extra mouths. There'll be a ship droppin' by out of curiosity now and then, and we'll trade with 'em. If we're disowned—we'll be poor. But when were the Irish ever rich?"

The committeeman who was a manufacturer of precision machinery mopped his forehead.

"Ye're rich now," he said resignedly. "You'd be bound to learn it. D'you know what the dinies' teeth are made of?"

"It's been said," said President O'Hanrahan, "that it's bor . . . boron carbide in organic form. What that means I wouldn't know, but we've got a fine crop of it!"

"It's the next hardest substance to diamond," said the committeeman dourly. "It's even been guessed that an organic type might be harder. It's used for the tools for lathes and precision machinery, and it sells at close to the price of diamonds of industrial quality—and I'll make a deal to handle all ye've got. What Earth don't need, other planets will. You're rich."

The president stared. Then he gazed at Moira.

"It's a pity we're bein' disowned," he said mournfully. "It would be a fine thing to be able to tell the grandfather Eire's rich and can feed more colonists and even maybe pay back what it's cost to keep us here so long.

It would be a fine thing to hire colonists to build the houses they'll be given free when they're finished. But since Sean O'Donohue is a stern man—"

The ship owner scratched his head. He'd paused on the way to the presidential mansion. He'd had restoratives for his distress. He'd looked at the bottom of a bottle and seen the facts.

"I'll tell ye," he said warmly. "It's the O'Donohue's been battlin' to keep the colony goin' against the politicians that wanted to economize. He's made a career of believin' in this world. He's ruined if he stops. So it might be that a little bit of blarneyin'—with him desperate to find reason to stay friends, black creature or no black creatures—"

The president took Moira's hand.

"Come, my darlin'," he said sadly. "We'll reason with him."

Long, long minutes later he shook his head as Sean O'Donohue stormed at him.

"The back o' my hand to you!" said Sean O'Donohue in the very quintessence of bitterness. "And to Moira, too, if she has more to do with you! I'll have naught to do with shenanigannin' runnagades and blasphemers that actually import snakes into a world St. Patrick had set off for the Erse from ancient days!"

It was dark in the old man's room. He was a small and pathetic figure under the covers. He was utterly defiant. He was irreconcilable, to all seeming.

"Runnagades!" he said indignantly. "Snakes, ye say? The devil a snake there is on Eire! I'll admit that we've some good black creatures that in a bad light and with prejudice ye might mistake. But snakes? Ye might as well call the dinies lizards—those same dinies that are native Eirian porcupines—bad luck to them!"

There was an astounded silence from the bed.

"It's a matter of terminology," said the president sternly. "And it's not the name that makes a thing, but what it does! *Actio sequitur esse,* as the sayin' goes. You'll not be denyin' that! Now, a diny hangs around a man's house and it eats his food and his tools and it's no sort of good to anybody while it's alive. Is that the action of a lizard? It is not! But it's notorious that porcupines hang around men's houses and eat the handles of their tools for the salt in them, ignorin' the poor man whose sweat had the salt in it when he was laborin' to earn a livin' for his family. And when a thing acts like a porcupine, a porcupine it is and nothing else! So a diny is a Eirean porcupine, native to the planet, and no man can deny it!

"And what, then, is a snake?" demanded President O'Hanrahan oratorically. "It's a creature that sneaks about upon the ground and poisons by its bite when it's not blarneyin' unwise females into tastin' apples. Do the black creatures here do anything of that sort? They do not! They go about their business plain and open, givin' a half of the road and a how'd'ye-do to those they meet.

They're sober and they're industrious. They mind their own business, which is killin' the Eirean porcupines we inaccurate call by the name of dinies. It's their profession! Did ye ever hear of a snake with a profession? I'll not have it said that there's snakes on Eire! And I'll denounce ye as a conscienceless politician if ye dare to put such a name on the honest, friendly, industrious Eirean porcupine-eaters that up to this moment have been the savin' of the colony! I'll not have it!"

There was a long silence. Then Sean O'Donohue spoke dryly: "Porcupine eaters, you say? Not snakes?"

"Not snakes!" repeated the president defiantly. "Porcupine eaters!"

"Hm-m-m," said Sean O'Donohue. "That's better. The Dail's not immune to blarney when it's needful to accept it—and Eire back on Earth is hard put for breathin' room you say can be had from now on. What would be the reason for Moira standin' so close to you?"

"She's marryin' me," said President O'Hanrahan firmly.

Sean O'Donohue's voice was waspish.

"But I forbid it!" it said sharply. "Until I'm up and about and able to be givin' her in marriage as her grandfather ought to be doin'! Ye'll wait the few days till I'm able! Understand?"

"Yes, sir," said the president. Meekness seemed called for.

"Then begone!" snapped Sean O'Donohue. Then he added sternly: "Remember—no shenanigans!"

The solicitor general watched them depart on a wedding journey to a cottage in Ballyhanninch, which was on Donegal Peninsular, fronting on the Emmett Sea. He waved, like the assembled populace. But when they were out of sight he said darkly to the chief justice and the Chancellor of the Exchequer:

"I didn't have the heart to bring it up before, but there's the devil of a problem buildin' up against the time he comes back."

"Which problem?" asked the Chancellor of the Exchequer, warily.

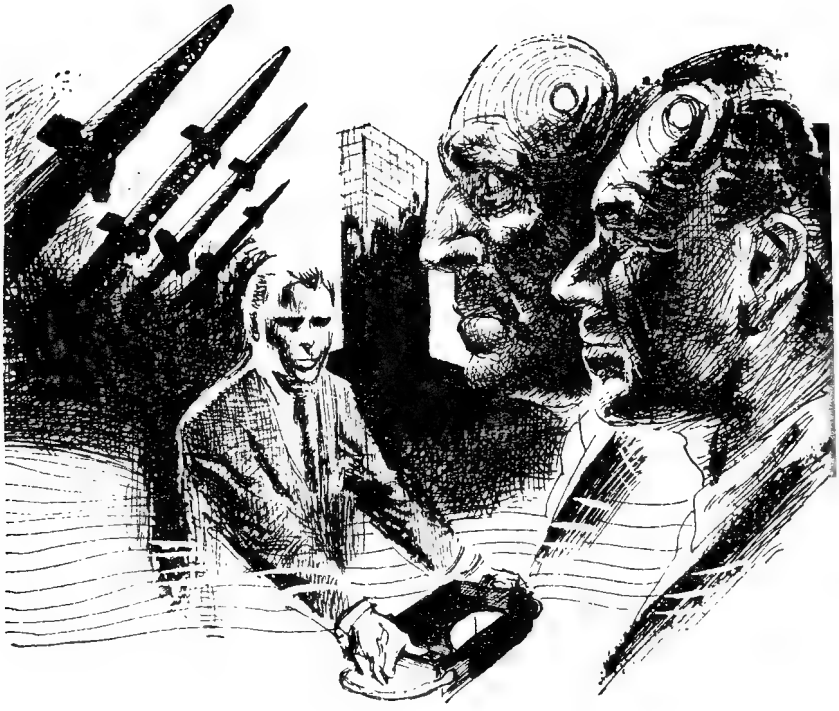
"It's the sn . . . the porcupine killers," said the solicitor general. "Things look bad for them. They're out of work. Even Timothy. There's no dinies to speak of for them to earn a livin' by killin'. It's technological unemployment. They earned their way faithful, doin' work they knew an' loved. Now they're jobless. There's no work for them. What's to be done? Put 'em on re-

There was a pause. The solicitor general said firmly:

"I mean it! They've a claim on us! A claim of the highest order! They can't starve, it's sure! But would you have them have to hold mass meetin's and set up picket lines and the like, to get justice done them?"

"Ah," said the chief justice. "Some way will turn up to handle the matter. Like Sean O'Donohue was sayin' to me yesterday, at the very bottom of a bottle, we Erse can always depend on St. Patrick to take care of things!"

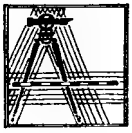
THE END



BY CHRISTOPHER ANVIL

Names aren't important, eh? Hah! Have you ever tried getting along without names, though . . .

A ROSE BY OTHER NAME...



TALL man in a tightly-belted trenchcoat carried a heavy brief case toward the Pentagon building.

A man in a black overcoat strode with a bulky suitcase toward the Kremlin.

A well-dressed man wearing a dark-blue suit stepped out of a taxi near the United Nations building, and paid the driver. As he walked away, he leaned slightly to the right, as if the attaché case under his left arm held lead instead of paper.

Illustrated by Summers

On the sidewalk nearby, a discarded newspaper lifted in the wind, to lie face up before the entrance to the United Nations building. Its big black headline read:

U. S. WILL FIGHT!

A set of diagrams in this newspaper showed United States and Soviet missiles, with comparisons of ranges, payloads, and explosive powers, and with the Washington Monument sketched into the background to give an idea of their size.

The well-dressed man with the attaché case strode across the newspaper to the entrance, his heels ripping the tables of missile comparisons as he passed.

Inside the building, the Soviet delegate was at this moment saying:

"The Soviet Union is the most sci-

entifically advanced nation on Earth. The Soviet Union is the most powerful nation on Earth. It is not up to you to say to the Soviet Union, 'Yes' or 'No.' The Soviet Union has told you what it is going to do. All I can suggest for you is, you had better agree with us."

The United States delegate said, "That is the view of the Soviet government?"

"That is the view of the Soviet government."

"In that case, I will have to tell you the view of the United States government. If the Soviet Union carries out this latest piece of brutal aggression, the United States will consider it a direct attack upon its own security. I hope you know what this means."

There was an uneasy stir in the room.

The Soviet delegate said slowly, "I am sorry to hear you say that. I am authorized to state that the Soviet Union will not retreat on this issue."

The United States delegate said, "The position of the United States is already plain. If the Soviet Union carries this out, the United States will consider it as a direct attack. There is nothing more I can say."

In the momentary silence that followed, a guard with a rather stuporous look opened the door to let in a well-dressed man, who was just sliding something back into his attaché case. This man glanced thoughtfully around the room, where someone was just saying:

"*Now* what do we do?"

Someone else said hesitantly, "A conference, perhaps?"

The Soviet delegate said coolly "A conference will not settle this The United States must correct its provocative attitude."

The United States delegate looked off at a distant wall. "The provocation is this latest Soviet aggression All that is needed is for the Soviet Union not to do it."

"The Soviet Union will not retreat in this issue."

The United States delegate said, "The United States will not retreat on this issue."

There was a dull silence that lasted for some time.

As the United States and Soviet delegates sat unmoving, there came an urgent plea, "Gentlemen, doesn't anyone have an idea? However implausible?"

The silence continued long enough to make it plain that now no one could see any way out.

A well-dressed man in dark-blue, carrying an attaché case, stepped forward and set the case down on a table with a solid *clunk* that riveted attention.

"Now," he said, "we are in a real mess. Very few people on Earth want to get burned alive, poisoned, or smashed to bits. We don't want a ruinous war. But from the looks of things, we're likely to get one anyway, whether we want it or not.

"The position we are in is like that of a crowd of people locked in a room. Some of us have brought

along for our protection large savage dogs. Our two chief members have trained tigers. This managerie is now straining at the leash. Once the first blow lands, no one can say where it will end.

"What we seem to need right now is someone with skills of a lion tamer. The lion tamer controls the animals by understanding, timing, and *distraction.*"

The United States and Soviet delegates glanced curiously at each other. The other delegates shifted around with puzzled expressions. Several opened their mouths as if to interrupt, glanced at the United States and Soviet delegates, shut their mouths and looked at the attaché case.

"Now," the man went on, "a lion tamer's tools are a pistol, a whip, and a chair. They are used to distract. The pistol contains blank cartridges, the whip is snapped above the animal's head, and the chair is held with the points of the legs out, so that the animal's gaze is drawn first to one point, then another, as the chair is shifted. The sharp noise of gun and whip distract the animal's attention. So does the chair.

". . . And so long as the animal's attention is distracted, its terrific power isn't put into play. This is how the lion tamer keeps peace.

"The thought processes of a war machine are a little different from the thought processes of a lion or a tiger. But the principle is the same. What we need is something corresponding to the lion tamer's whip, chair, and gun."

He unsnapped the cover of the attaché case, and lifted out a dull gray slab with a handle on each end, several dials on its face, and beside the dials a red button and a blue button.

"It's generally known," he said, looking around at the scowling delegates, "that certain mental activities are associated with certain areas of the brain. Damage a given brain area, and you disrupt the corresponding mental action. Speech may be disrupted, while writing remains. A man who speaks French and German may lose his ability to speak French, but still be able to speak German. These things are well-known, but not generally used. Now, who knows if, perhaps, there is a special section of the brain which handles the vocabulary *related to military subjects?*"

He pushed in the blue button.

The Soviet delegate sat up straight. "What is that button you just pushed?"

"A demonstration button. It actuates when I release it."

The United States delegate said, "Actuates *what?*"

"I will show you, if you will be patient just a few minutes."

"What's this about brain areas? We can't open the brain of every general in the world."

"You won't have to. Of course, you have heard of resonant frequencies and related topics. Take two tuning forks that vibrate at the same rate. Set one in vibration, and the other across the room will vibrate. Soldiers marching across a bridge

break step, lest they start the bridge in vibration and bring it down. The right note on a violin will shatter a glass. Who knows whether minute electrical currents in a particular area of the brain, associated with a certain characteristic mental activity, may not tend to induce a similar activity in the corresponding section of another brain? And, in that case, if it were possible to induce a sufficiently *strong* current, it might actually overload that particular—"

The United States delegate tensely measured with his eyes the distance to the gray slab on the table.

The Soviet delegate slid his hand toward his waistband.

The man who was speaking took his finger from the blue button.

The Soviet delegate jerked out a small black automatic. The United States delegate shot from his chair in a flying leap. Around the room, men sprang to their feet. There was an instant of violent activity.

Then the automatic fell to the floor. The United States delegate sprawled motionless across the table. Around the room, men crumpled to the floor in the nerveless fashion of the dead drunk.

Just one man remained on his feet, leaning forward with a faintly dazed expression as he reached for the red button. He said, "You have temporarily overloaded certain mental circuits, gentlemen. I have been protected by a . . . you might say, a jamming device. You will recover from the effects of *this* overload. The next one you experience will be a different matter. I am sorry, but there are certain conditions of mental resonance that the human race can't afford at the moment."

He pressed the red button.

The United States delegate, lying on the table, experienced a momentary surge of rage. In a flash, it was followed by an intensely clear vision of the map of Russia, the polar regions adjoining it, and the nations along its long southern border. Then the map was more than a map, as he saw the economic complexes of the Soviet Union, and the racial and national groups forcibly submerged by the central government. The strong and weak points of the Soviet Union emerged, as in a transparent anatomical model of the human body laid out for an operation.

Not far away, the Soviet delegate could see the submarines off the coasts of the United States, the missiles arcing down on the vital industrial areas, the bombers on their long one-way missions, and the unexpected land attack to settle the problem for once and for all. As he thought, he revised the plan continuously, noting an unexpected American strength here, and the possibility of a dangerous counterblow there.

In the minds of another delegate, Great Britain balanced off the United States against the Soviet Union, then by a series of carefully planned moves acquired the moral leadership of a bloc of uncommitted nations. Next, with this as a basis for maneuver—

Another delegate saw France lead-

ing a Europe small in area but immense in productive power. After first isolating Britain –

At nearly the same split fraction of an instant, all these plans became complete. Each delegate saw his nation's way to the top with a dazzling, more than human clarity.

And then there was an impression like the brief glow of an overloaded wire. There was a sensation similar to pain.

This experience repeated itself in a great number of places around the globe.

In the Kremlin, a powerfully-built marshal blinked at the members of his staff.

"Strange. For just a minute there, I seemed to see—" He shrugged, and pointed at the map. "Now, along the North German Plain here, where we intend to . . . to—" He scowled, groping for a word. "Hm-m-m. Where we want to . . . ah . . . destabilize the . . . the ridiculous NATO protective counterproposals—" He stopped, frowning.

The members of his staff straightened up and looked puzzled. A general said, "Marshal, I just had an idea. Now, one of the questions is: Will the Americans . . . ah—Will they . . . hm-m-m—" He scowled, glanced off across the room, bit his lip, and said, "Ah . . . what I'm trying to say is: Will they forcibly demolecularize Paris, Rome, and other Allied centers when we . . . ah . . . inundate them with the integrated hyperarticulated elements of our—" He cut himself off suddenly, a look of horror on his face.

The marshal said sharply, "What are you talking about—'demolecularize?' You mean, will they . . . hm-m-m . . . deconstitute the existent structural pattern by application of intense energy of nuclear fusion?" He stopped and blinked several times as this last sentence played itself back in his mind.

Another member of the staff spoke up hesitantly, "Sir, I'm not exactly sure what you have in mind, but I had a thought back there that struck me as a good workable plan to deconstitutionalize the whole American government in five years by unstructing their political organization through intrasocietal political action simultaneously on all levels. Now—"

"Ah," said another general, his eyes shining with an inward vision, "I have a better plan. Banana embargo. Listen—"

A fine beading of perspiration appeared on the marshal's brow. It had occurred to him to wonder if the Americans had somehow just landed the ultimate in foul blows. He groped around mentally to try to get his mind back on the track.

At this moment, two men in various shades of blue were sitting by a big globe in the Pentagon building staring at a third man in an olive-colored uniform. There was an air of embarrassment in the room.

At length, one of the men in blue cleared his throat. "General, I hope your plans are based on something

a little clearer than that. I don't see how you can expect us to co-operate with you in recommending *that* kind of a thing to the President. But now, I just had a remarkable idea. It's a little unusual; but if I do say so, it's the kind of thing that can clarify the situation instead of sinking it in hopeless confusion. Now, what I propose is that we immediately proceed to layerize the existent trade routes in *depth.* This will counteract the Soviet potential nullification of our sea-borne surface-level communications through their underwater superiority. Now, this involves a fairly unusual concept. But what I'm driving at—"

"Wait a minute," said the general, in a faintly hurt tone. "You didn't get my point. It may be that I didn't express it quite as I intended. But what I mean is, we've got to really bat those bricks all over the lot. Otherwise, there's bound to be trouble. Look—"

The man in Air Force blue cleared his throat. "Frankly, I've always suspected there was a certain amount of confusion in both your plans. But I never expected anything like this. Fortunately, *I* have an idea—"

At the United Nations, the American and Russian delegates were staring at the British delegate, who was saying methodically, "Agriculture, art, literature, science, engineering, medicine, sociology, botany, zoology, beekeeping, tinsmithing, speleology, wa . . . w . . . milita . . . mili . . . mil . . . hm-m-m . . . sewing, needlework, navigation, law, business, barrister, batt . . . bat . . . ba— Can't say it."

"In other words," said the United States delegate, "we're mentally hamstrung. Our vocabulary is gone as regards . . . ah— That is, we can talk about practically anything, except subjects having to do with . . . er . . . strong disagreements."

The Soviet delegate scowled. "This is bad. I just had a good idea, too. Maybe—" He reached for pencil and paper.

A guard came in scowling. "Sorry, sir. There's no sign of any such person in the building now. He must have gotten away."

The Soviet delegate was looking glumly at his piece of paper.

"Well," he said, "I do not think I would care to trust the safety of my country to this method of communication."

Staring up at him from the paper were the words:

"Instructions to head man of Forty-fourth Ground-Walking Club. Seek to interpose your club along the high ground between the not-friendly-to-us fellows and the railway station. Use repeated strong practical urging procedures to obtain results desired."

The United States delegate had gotten hold of a typewriter, slid in a piece of paper, typed rapidly, and was now scowling in frustration at the result.

The Soviet delegate shook his head. "What's the word for it?

We've been bugged. The section of our vocabulary dealing with . . . with . . . you know what I mean . . . that section has been burned out."

The United States delegate scowled. "Well, we can still stick pins in maps and draw pictures. Eventually we can get across what we mean."

"Yes, but that is no way to run a wa . . . wa . . . a strong disagreement. We will have to build up a whole new vocabulary to deal with the subject."

The United States delegate thought it over, and nodded. "All right," he said. "Now, look. If we're each going to have to make new vocabularies, do we want to end up with . . . say . . . sixteen different words in sixteen different languages all for the same thing? Take a . . . er . . . 'strong disagreement.' Are you going to call it 'gosnik' and we call it 'gack' and the French call it 'gouk' and the Germans call it 'Gunck'? And then we have to have twenty dozen different sets of dictionaries and hundreds of interpreters so we can merely get some idea what each other is talking about?"

"No," said the Soivet delegate grimly. "Not that. We should have an international commission to settle that. Maybe there, at least, is something we can agree on. Obviously, it is to everyone's advantage not to have innumerable new words for the same thing. Meanwhile, perhaps . . . ah . . . perhaps for now we had better postpone a final settlement of the present difficulty."

Six months later, a man wearing a tightly-belted trenchcoat approached the Pentagon building.

A man carrying a heavy suitcase strode along some distance from the Kremlin.

A taxi carrying a well-dressed man with an attaché case cruised past the United Nations building.

Inside the United Nations building, the debate was getting hot. The Soviet delegate said angrily:

"The Soviet Union is the most scientifically advanced and unquestionably the most gacknik nation on Earth. The Soviet Union will not take dictation from anybody. We have given you an extra half-year to make up your minds, and now we are going to put it to you bluntly:

"If you want to cush a gack with us over this issue, we will mongel you. We will grock you into the middle of next week. No running dog of a capitalist imperialist will get out in one piece. You may hurt us in the process, but *we* will absolutely bocket *you*. The day of decadent capitalism is *over*."

A rush of marvelous dialectic burst into life in the Soviet delegate's mind. For a split instant he could see with unnatural clarity not only why, but how, his nation's philosophy was bound to emerge triumphant—if handled properly—and even without a ruinous gack, too.

Unknown to the Soviet delegate, the United States delegate was simultaneously experiencing a clear insight into the stunning possibilities of basic

American beliefs, which up to now had hardly been tapped at all.

At the same time, other delegates were sitting straight, their eyes fixed on distant visions.

The instant of dazzling certainty burnt itself out.

"Yes," said the Soviet delegate, as if in a trance. "No need to even cush a gack. Inevitably, victory must go to communi . . . commu . . . comm . . . com—" He stared in horror.

The American delegate shut his eyes and groaned. "Capitalis . . . capita . . . capi . . . cap . . . rugged individu . . . rugged indi . . . rugge . . . rug . . . rug—" He looked up. "Now we've got to have *another* conference. And then, on top of that, we've got to somehow cram our new definitions down the throats of the thirty per cent of the people they *don't* reach with their device."

The Soviet delegate felt for his chair and sat down heavily. "Dialectic materia . . . dialecti . . . dial . . . dia—" He put his head in both hands and drew in a deep shuddering breath.

The British delegate was saying, "Thin red li . . . thin re . . . thin . . . thin— This *hurts*."

"Yes," said the United States delegate. "But if this goes on, we may end up with a complete, new, unified language. Maybe that's the idea."

The Soviet delegate drew in a deep breath and looked up gloomily. "Also, this answers one long-standing question."

"What's that?"

"One of your writers asked it long ago: 'What's in a name?' "

The delegates all nodded with sickly expressions.

"*Now* we know."

THE END

IN TIMES TO COME

As promised, the February issue, next month's, starts a further process of change-and-development; during the next year we're going to have to refer to the magazine as ASF, I guess—because we're going to make a change. This, the thirtieth year of Astounding, is also the last—because it's going to change over to ANALOG: Science Fact & Fiction. The change starts with the February issue, with the addition of ANALOG in skeleton type behind *Astounding*. But it will continue to be—as many readers already name it—*ASF*.

A further change; the cover will not be by Freas, van Dongen, or Emsh—but by Campbell. The feature item is a full-dress discussion of the Land Color Vision experiments, and the cover had to be used to present the color scene studied in the experiments. And by the way . . . did you know that *no known color photography process* can reproduce a spectrum? Explanation in full next month.

THE EDITOR.

SOLID PLUTONIUM HEADACHE

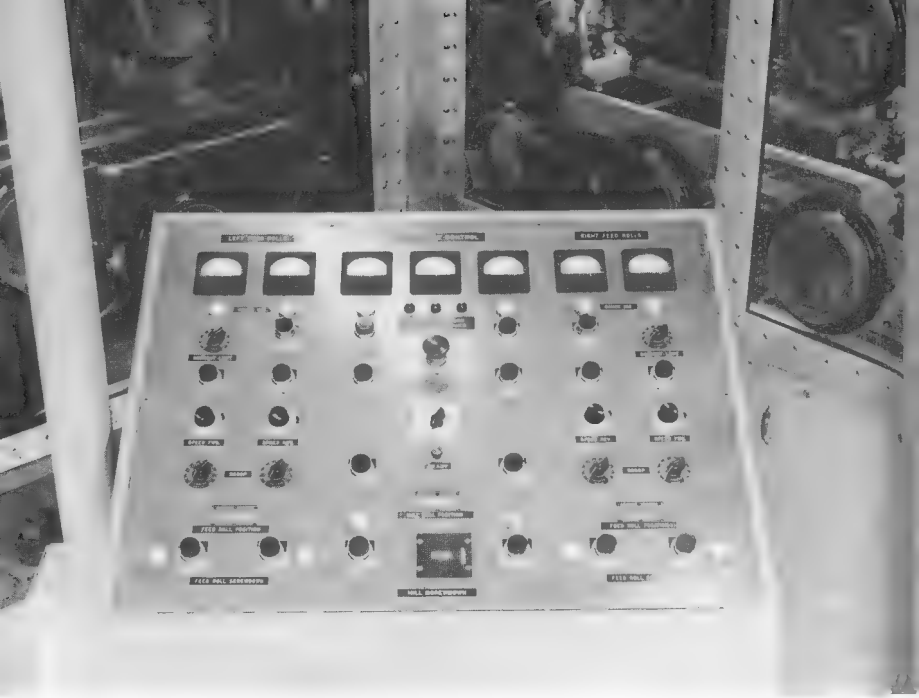
THE all-time top-champion industrial-hazard headache is a dense, rather brittle, readily corroded, and fantastically dangerous metal. In one quite valid sense, you could say the stuff doesn't exist; it does not occur, but has to be made synthetically. It can be obtained only by transmutation, and, when produced, is the most dangerous industrial substance anyone has yet tried to work with.

Only because plutonium is, also, the most promising of all nuclear fuel materials have men been forced to solve the problems. It's not only a nuclear hazard, however—other materials present that problem—it is, in addition, a strictly chemical hazard. It ignites readily, and burns inextinguishably. It's chemically toxic. Mechanically, it's a machinist's nightmare; it changes crystalline phase half a dozen times in the range of temperatures encountered in normal machine-tool work. And each crystalline phase has a different density, and different length-width-height ratio. It doesn't merely undergo thermal expansion when machined—it changes size, density, and shape!

Of course, the thing that makes it the most desirable of nuclear fuels is its extremely high reactivity . . . which means it's consequently the most tricky of all nuclear fuel materials!

But . . . it *had* to be studied; men *had* to work with it. So the Argonne National Laboratories research team had to work out a method to handle the world's most cantankerous, toxic, deadly, and powerful material. Name any property any commercially workable material should not have—and plutonium's got it, and got it in fantastic degree.

It's of course obvious that this is one material you do *not* store by piling it up on shelves—but did you know you can't even walk close to



Control console for rolling mill. This is one of three operating stations from which the mill is completely controlled.

the stuff safely? It's been said, in exaggeration, of some extremely sensitive explosives, that you "can't even look at it without setting it off!" With plutonium—darned if it isn't apt to be literally true!

The following material is an exact, complete reproduction of the Argonne National Laboratories news release on the plutonium fuel element problem. This is not theoretical research work; this is "mere engineering"—and one of the trickiest, most brilliant pieces of engineering-problem solving that I've seen released for publication.

USE OF PLUTONIUM IN NUCLEAR POWER REACTORS

by Frank G. Foote

Director, Metallurgy Division
Argonne National Laboratory

The fission process, whereby neutrons react with certain heavy metal nuclides to form fission products and additional neutrons, produces considerable heat by the conversion of mass into energy. The three fissionable nuclides practically useable in the fission process are uranium-233, uranium-235 and plutonium-239.

Only the second (U^{235}) of these fissionable isotopes is found in nature to any appreciable extent; the other two (U^{233} and Pu^{239}) must be manufactured.

The interrelationship between naturally occurring isotopes and fissionable isotopes is shown in the following table.

	Natural Element	Fissionable Isotope
Uranium	99.3% U^{238}	Pu^{239}
	0.7% U^{235}	U^{235}
Thorium	100% Th^{232}	U^{233}

The two naturally occurring materials available to us are: (1) uranium, and (2) thorium.

Uranium consists of two isotopes: the major isotope, U^{238}, (99.3% of natural uranium) is not itself fissionable to any great extent but is considered to be a *fertile* isotope in that Pu^{239}, a fissionable isotope, can be produced from it by a series of nuclear reactions. The minor isotope, U^{235}, (only 0.7% of natural uranium) is fissionable and can be used as diluted with U^{238} in natural uranium or can be concentrated and separated from some or most of the U^{238} to yield enriched uranium. Natural thorium is 100% Th^{232}, another *fertile* material from which U^{233}, a fissionable isotope, can be prepared.

It is obvious, therefore, that in nature we find a relative *abundance* of *fertile* isotopes and a *scarcity* of *fissionable* isotopes. Of the three major fissionable materials, U^{233}, U^{235}, and Pu^{239}, uranium-235, although extensively used up to the present, is inherently scarce. U^{233} and Pu^{239} are potentially much more plentiful because they can be made from the major constituents of naturally occurring materials. The trick is to find some way of carrying out the nuclear reactions which produce these artificial isotopes and at the same time produce useful power. It would seem that the large-scale, long range development of nuclear power must make extensive use of uranium-233 derived from thorium and of plutonium-239 derived from the major isotope of natural uranium.

The nuclear chain reaction depends upon the fact that the reaction between a neutron and a fissionable isotope produces not only fission products and energy but also additional neutrons. Indeed, more neutrons are produced by each fission than are used up. On the average, between 2.5 and 3 are produced, the number depending upon the particular fissionable isotope involved in the reaction and the conditions under which fission occurs.

One of these newly generated neutrons from each fission is required to continue the chain reaction. A few neutrons leak out of the reactor, are absorbed parasitically in structural material, or are otherwise absorbed to produce non-useful isotopes. The remainder can be used to produce fissionable isotopes from fertile isotopes. If the number of neutrons used in this way exceeds unity, then the reactor is a *breeder* in that it produces more fissionable material than it consumes.

Fast Reactor Fuel: It has long been known that plutonium possesses favorable nuclear characteristics in a fast (unmoderated) neutron flux. Indeed the nuclear situation is so favorable that such a reactor system, fueled with plutonium and blanketed with a layer of U^{238}, will not only produce power but will also "breed" more plutonium in the blanket than is consumed in the core. Such reactors are known as Power Breeders. Once sufficient plutonium has been accumulated to fuel such devices, the power system is not only self-sustaining but also self-expanding. It presents the rather attractive feature of a power system operating on the abundant isotope of uranium and with a constantly increasing inventory of fissionable plutonium.

In view of these considerations, it would seem that by far the best utilization of plutonium would be as fuel in a fast-neutron power-breeder reactor. The problem now becomes that of engineering a suitable reactor system and of finding suitable materials of construction, the latter involving the development of plutonium-containing fuel elements.

In many respects plutonium turns out to be a most extraordinary metal. It has a relatively low melting point of 640°C, not far different from that of aluminum or magnesium. In the temperature range from room temperature to the melting point, plutonium exists in no less than six crystal forms and thus undergoes five solid state transformations on heating or cooling to or from temperatures just below the melting point. Unusually large volume changes are associated with several of these solid state transformations (up to 8.9%, and some are even negative). The densities of these various phases range from 19.8 for alpha plutonium at room temperature to 15.9 for delta plutonium at 320°C. Several of these phases have very complex crystal structures and exhibit highly anisotropic behavior (do not have the same physical properties in every direction), especially of thermal expansion coefficients. The average linear expansion coefficients are often large and in some cases negative. As a result of these large volume changes and the anisotropy of thermal expansion, plutonium undergoes considerable distortion when heated and cooled.

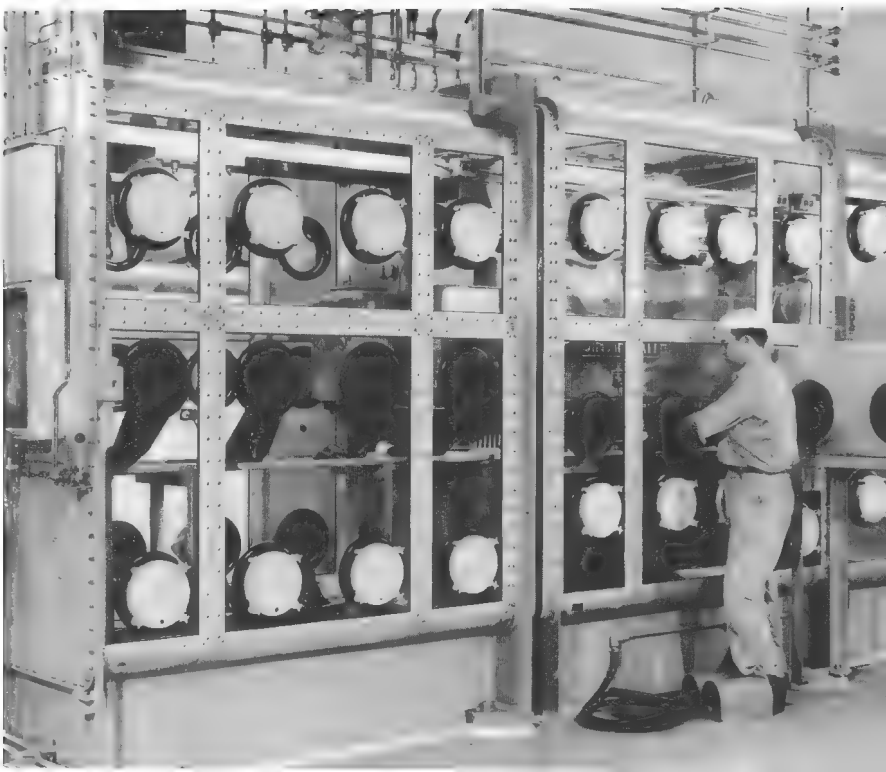
In view of these and other peculiarities in properties and behavior, we may safely conclude that *pure* plutonium is essentially unuseable as fuel in power producing reactors. Actually in such power producing reactors, none of the fissionable materials should be used in pure form since the heat transfer surfaces available are inadequate to handle the energy generated in such concentrated fuels. The fuel must be spread out in some manner, and the most practical way is by dilution with some nonfissionable material (either fertile isotopes such as U^{238} or Th^{232} or inert materials such as aluminum). Under these conditions, the properties of the fuel resemble those of the diluent

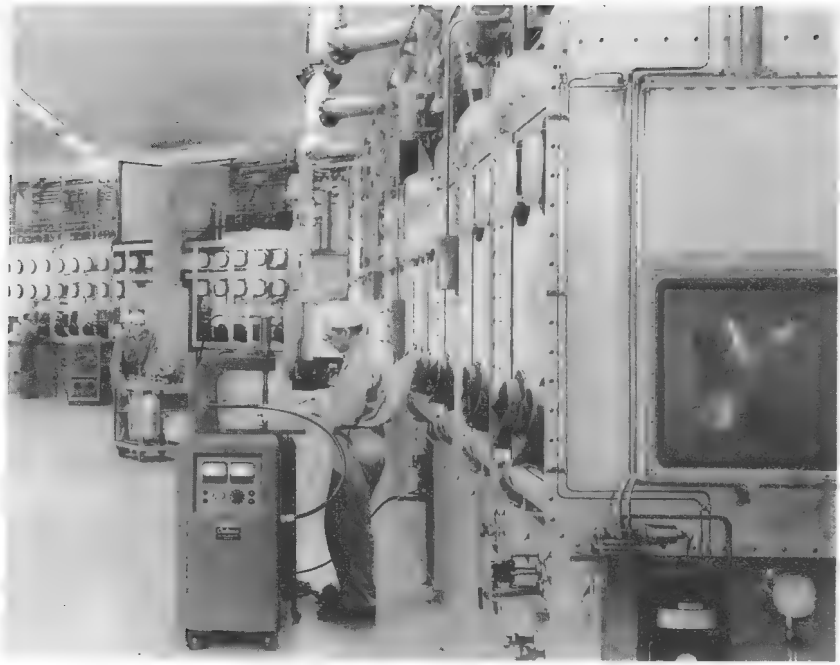
and the peculiarities of plutonium itself are pretty well wiped out.

Thermal Reactor Fuel: While the neutron economy in a plutonium fueled thermal reactor is not as good as it is in a plutonium fueled fast reactor in that breeding is impossible in such a thermal reactor, still plutonium is a fissionable material and can certainly be burned in a thermal reactor. Some difficulties are associated with trying to squeeze the utmost utilization out of natural uranium using only thermal reactor systems and a plutonium recycle process.

The problems will become much simpler when supplies of bred plutonium become available from fast power breeder reactors. Part or all of the excess plutonium produced in such reactors could be used to replace the U^{235} burned out of natural or slightly enriched uranium fuels. Further, thermal reactor fuels are likely to be even dilute in fissionable material than are fast reactor fuels and hence the properties and behavior of such fuels even more closely resemble those of the diluent. The plutonium can be diluted with fertile material (U^{238} or Th^{232}) or with

Operating the shear press (PF-24) of the Fuel Fabrication Facility. The press is used to cut pieces of metal to desired width.





View from entrance of fabrication area. Operator in foreground is using dielectric sealing equipment for removal of items from the hood line.

inert materials such as aluminum or zirconium and could be used in the form of metallic alloys or as compounds such as oxides. A whole host of interesting possibilities exist in this area of thermal reactor fuels. Such reactors offer the advantage of a power producing system requiring a much smaller investment of plutonium to achieve criticality.

Conclusions

Plutonium does not occur in nature, but can be produced from U^{238}, the abundant isotope of natural uranium, by a series of nuclear reactions. After chemical isolation from the uranium in which it is formed, the halides can be reduced to metal by methods analogous to those used for uranium. The metal has unusual and quite undesirable physical properties and is useable as a power reactor fuel only if diluted with considerable nonfissile material, either fertile (such as U^{238} or Th^{232}) or inert (such as aluminum, zirconium, or oxygen).

The best use appears to be as fuel in a fast power-breeder which not only produces power but also makes

more plutonium than it burns. However, such reactors require moderately concentrated fuel and an investment of several hundred kilos of plutonium per reactor. Plutonium, highly diluted with fertile materials such as uranium and thorium or with inert materials such as aluminum, zirconium, or oxygen can be used as fuel in thermal reactors.

SAFETY ASPECTS OF WORKING WITH PLUTONIUM

by Arthur B. Shuck
Project Engineer, Fuel Fabrication Facility
Argonne National Laboratory

The hazards of working with plutonium are a consequence of four properties of the element. (1) Plutonium has the property of criticality (critical mass) with respect to neutron multiplication and nuclear fission. (2) Plutonium is a strong emitter of alpha particles. (3) Under certain circumstances, plutonium may constitute a radiation hazard, and (4) in some forms, plutonium is pyrophoric, combining spontaneously and energetically with oxygen and producing sufficient heat to ignite combustible materials in its environment.

The Fuel Fabrication Facility is designed to allow maximum control of these four hazardous properties.

(1) *Criticality*

Critical mass is a characteristic of all nuclear fuels. It may be defined as the minimum mass of fissionable isotope required under a given set of conditions to initiate a nuclear chain reaction. The term is somewhat misleading in that criticality is not a factor of mass alone, but is influenced by shape, dispersion, energy of the neutrons, kinds of materials in which the fissionable isotopes are dispersed, and materials surrounding the fissionable material which may reflect neutrons. The three fissionable isotopes of importance as reactor fuels are U^{235}, U^{233} and Pu^{239}.

Two concepts of safety are used in evaluating work with critical materials. One is the concept of "always safe mass." The second is the concept of always safe geometry. The always safe mass is the amount of fissionable isotope which regardless of shape, dispersion, moderation or reflection cannot sustain a nuclear chain reaction. Work with quantities below the "always safe mass" provides the maximum of protection for the workers, provided of course that two or more such masses are not brought close enough together to form a critical system. Since much of the processing of uranium and plutonium is done in ordinary light water solutions, which is both an excellent moderator and reflector of neutrons, the "always safe mass" is a concept of great practical importance.

Henry[1] shows the following critical mass geometry and dispersion in water values for the three nuclear fuel isotopes:

Values of Nuclear Variables

Basic Nuclear Parameters	U^{235}		U^{233}		Pu^{239}	
	Minimum Critical	Safe	Minimum Critical	Safe	Minimum Critical	Safe
Mass (kilograms)						
Solution	0.80	0.35	0.59	0.25	0.51	0.25
Metal	22.8	11.0	8.0	3.0	5.6	2.6
Cylinder Dia. (inches)						
Solution	5.5	5.0	4.5	3.7	5.0	4.5
Metal	2.9	2.5	—	1.5	—	1.4
Slab Thickness (inches)						
Solution	1.7	1.5	—	0.5	—	1.5
Metal	0.75	0.65	—	0.2	—	0.2
Volume (liters)						
Solution	5.9	4.8	3.5	2.0	5.0	3.3
Concentration (grams per liter)						
Solution	11.6	5.0	10.9	4.7	7.3	3.2

These values were developed for pure fissile materials surrounded by a thick water reflector. Solution values are for solutions in ordinary water. Metal values are for rectangular masses of metal. The "always safe mass" of fissionable material is usually taken as slightly less than one half of the above figures; hence, an accidental combination of two always safe masses cannot cause criticality.

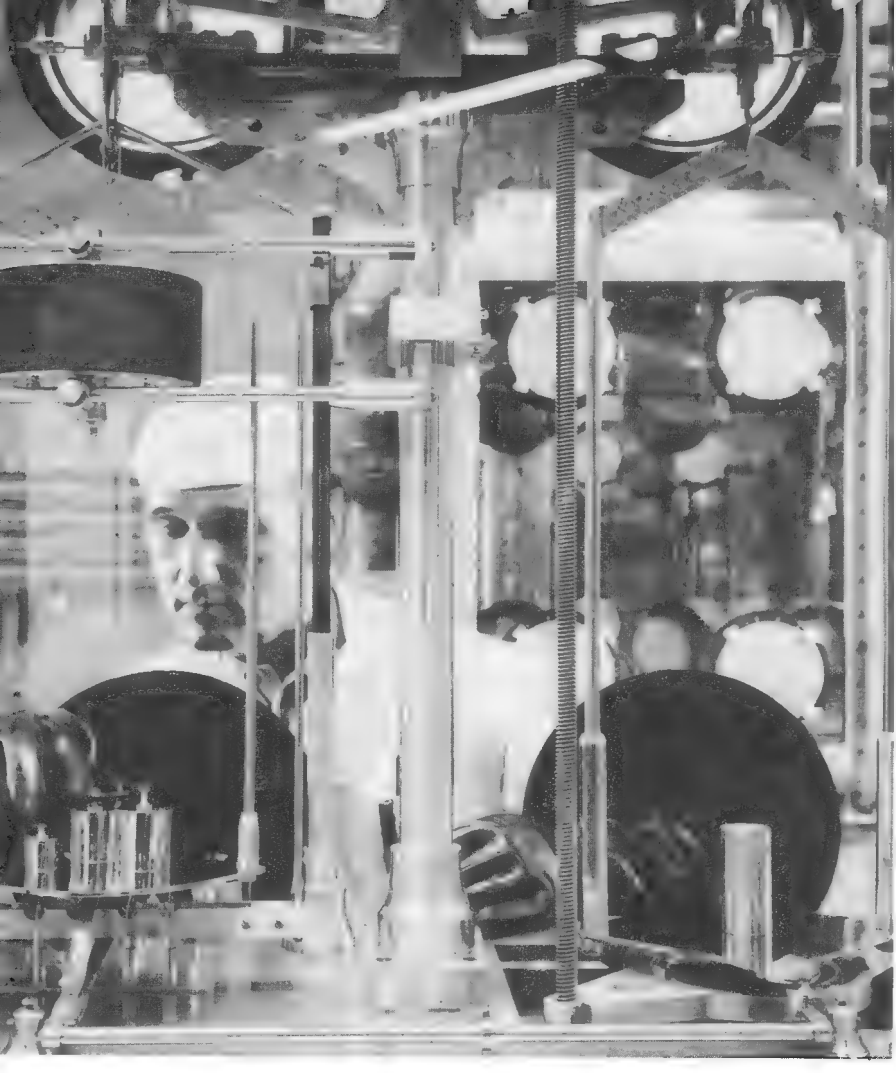
The plutonium as received contains other isotopes of plutonium than Pu-239 and impurities. For this "commercial" plutonium, 300 grams (about 10.6 ounces) is usually considered the always safe mass below which criticality does not present a problem.

It is possible and often necessary to work with several thousand grams of plutonium provided that attention is paid to the materials in which the plutonium is contained, to how the plutonium is dispersed, and to the geometric shape of the plutonium.

Testing for helium leaks on hood line using mass spectrometer leak detector, with slight positive pressure of helium within hood.

This is the concept of "always safe geometry."

It is important to guard against conditions under which the system might become critical. For instance, 3,000 grams (6.6 pounds) of solid "commercial" plutonium is considered safe as a single piece even though it is accidently flooded with water. Dispersion in a moderating medium



Weighing specimen of plutonium in one kilogram analytical balance in the weighing and inspection lines (PF-7) of the Fuel Fabrication Facility.

(which slows down neutrons, allowing them to react more easily with plutonium atoms) would cause the same amount of plutonium to be supercritical. If a larger piece of plutonium were handled, flooding might cause a chain reaction. Flooding with water provides neutron reflection and must be avoided where substantial quantities of plutonium are processed or machined.

Flooding is prevented in the Fuel

Fabrication Facility process enclosures by pumping the water used for cooling equipment in these enclosures at subatmospheric pressure. Water is sucked rather than pushed through the cooling pipes. A break in one of these pipes would cause the process enclosure atmosphere to be drawn into the water cooling system, but the enclosures would not be flooded.

It is possible to work with pieces of plutonium metal which in a compact state would be supercritical, provided that attention is paid to their geometry. Thus a 3/16 inch plutonium plate of any size or a 1.4 inch diameter rod of any length is safe even though the total mass is many times the always safe mass.

The above considerations apply to isolated masses. Obviously plutonium plates or rods cannot be stacked without violating the principle of always safe geometry. The effect of interaction between safe masses spaced some distance apart must also be considered, particularly when a neutron slowing or moderating material might be placed between the masses. Storage vaults present a special problem in this respect inasmuch as many shapes and sizes of pieces, and dispersions of plutonium in other materials, must be stored.

It is conceivable that the moderating effect of the body of a human worker entering the vault might moderate or reflect enough neutrons to cause criticality. This is guarded against by arranging the vault stacks in cubicles and by limiting the quantity of plutonium stored in any cubicle. The spacing between stacks of shelves is also calculated so that if the shelves are loaded to capacity, the body of the custodian does not cause a nuclear chain reaction. The number of persons allowed at any time in a vault may also be limited. Special care must be taken so that vault shelves cannot collapse or be tipped against one another.

Fire in a vault presents a serious problem. Firemen must be prevented from flooding the vault with water both for reasons of criticality and because of the violent chemical interaction between water and many plutonium alloys. Neutron absorbers (or poisons) are sometimes used in vaults to reduce the flooding hazard potential.

Since all persons working with fissionable materials are not nuclear physicists experienced in the problems of criticality, the practice is to prepare a careful analysis of all operations exceeding the always safe mass of fissionable material. A detailed program of work to be done is planned in advance. A report is prepared showing how the work will flow, how much plutonium will be at a given place at a given time, and how the fuel being studied or manufactured will be composed. Internal moderators and neutron poisons are described in the report. The physical arrangement of the equipment and materials of construction for special laboratory equipment such as crucibles are also described. So that possible interactions may be studied, a motion study and transportation plan

are essential when many items are to be processed. Often the plan is carefully rehearsed using inert materials. The reports and rehearsals are carefully studied by a committee of scientists and engineers experienced in the analysis of criticality problems. Only after their approval is received can the work begin.

Unfortunately, there is no effective or practical instrumentation for monitoring approaching criticality in a process plant. Close administrative control is necessary over all processes and personnel to see that safe procedures are followed and that careless habits do not develop.

(2) *Protection Against Alpha Particle Emitters*

Plutonium emits three forms of radioactivity: alpha particles, gamma or x-rays and neutrons. Of these, alpha particle emission, because of its intensity, is of greatest consequence. Alpha particles emitted by plutonium have an energy of 5.15 MEV and a mean range in air of 3.68 cm. They are stopped by a thin film of plastic or metal foil or by human skin and so do not constitute a hazard as external radiation. However, they are very heavy particles and over their short range do extreme damage in biological tissues. The danger from plutonium and other alpha particle emitters comes from their possibility of being inhaled, ingested, or introduced through cuts or skin lesions. Unfortunately, plutonium is not completely eliminated from the body by natural processes and becomes fixed in tissues of the body, particularly bone tissues, where its strongly ionizing radiation causes extreme damage.

The National Committee for Radiation Protection[2] has set 0.13 micrograms (13 hundred millionths of a gram) as the maximum permissible limit of insoluble plutonium in the human body.

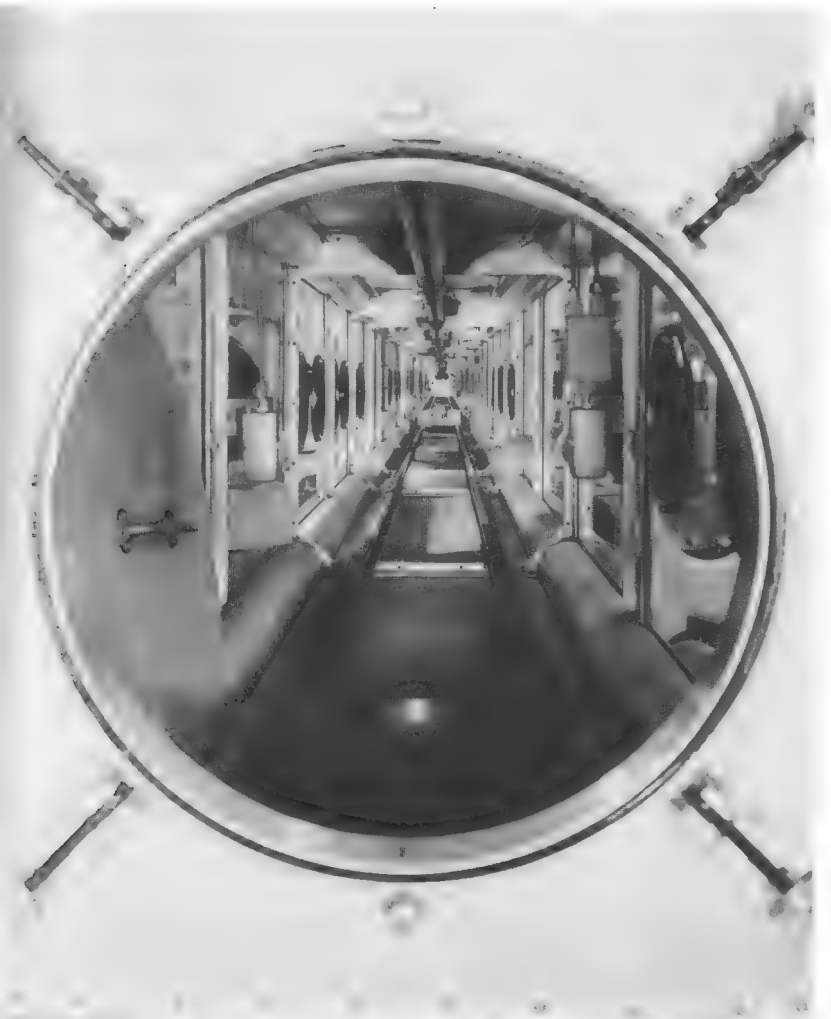
Uranium too is an alpha emitter, but plutonium emits about five million times as many alpha particles per gram as does uranium-238 or thorium. So while uranium-238 or thorium can be handled with about the same degree of precaution as any toxic metal, plutonium must be handled as though it were thousands of times more toxic than the most dangerous industrial poisons.

In ordinary moist air, plutonium tends to form a finely divided, loosely held oxide which has a remarkable ability to pass into the air and to remain airborne. The National Committee on Radiation Protection[2] has established a maximum permissible limit of 2.0×10^{-12} microcuries of plutonium per milliliter of air. Calculated in terms of gram concentration this becomes 32 trillionths of a gram per cubic meter of air.

From the very low maximum permissible limit of plutonium in air, it is evident that unless the plutonium is contained in a gas tight container, or fixed in a non-oxidizing alloy, it is necessary to completely separate the atmosphere exposed to the plutonium from the air breathed by the operators. This is commonly done by

enclosing the work spaces and equipment in "glove box" enclosures. Arm length neoprene gloves are sealed through the walls of these enclosures. Because the inside of these enclosures becomes very highly contaminated, it is necessary when designing this equipment to achieve a high de-

Looking through conveyor line in Fuel Fabrication Facility from east end. To the immediate left and right of entrance are the photoelectric light cells which comprise part of the conveyor interlock safety system.



gree of tightness. The associated ductwork, piping, electrical lines and process equipment which penetrate the walls of the enclosures must be made gas tight to the outside. In the Fuel Fabrication Facility, a leakage rate of 0.02 cubic feet of gas per hour per 100 cubic feet of enclosed space at a negative pressure of 2″ water gauge, was the maximum allowed. Leaks were hunted using helium sensitive mass spectrometer leak detectors.

A second method of controlling the leakage of plutonium contamination from the enclosure is to maintain the inside of the glove box at a negative pressure with respect to the room atmosphere. About 0.8 inch water gauge is the maximum differential pressure recommended because above this figure the gloves tend to inflate on the hands of human operators, making manipulation very clumsy. Customarily, two pairs of rubber gloves are worn by the operator in the Fuel Fabrication Facility. A heavy synthetic rubber glove is clamped to a port in the wall of the glove box. The operator wears thin surgical gloves on his hands to afford secondary protection in case the heavy gloves become snagged or cut. Great care is taken to prevent penetration of the gloves by sharp or hot objects. This is particularly important in a metals fabricating plant where many high temperature operations must be performed. For the sake of safety as well as production, as many operations as possible are mechanically performed.

To prevent contamination of the room, techniques have been devised for changing gloves and filters and for moving items into and out of the glove boxes without opening them. An object to be transferred is placed in a heavy vinyl pouch gasketed to a port through the wall of a hood. Three dielectric heat seals are made between the port and the object. The center seal is cut, separating the envelope containing the object to be removed from the glove box line. This leaves a somewhat shorter closed pouch still attached to the glove box line ready for the next transfer. This technique prevents contamination of the room and leakage of air into an inert gas filled glove box. It also provides a small balloon of inert atmosphere for those items which cannot be exposed to the air.

(3) *X-Rays, Gamma Rays and Neutron Radiation from Plutonium*

Until recently, radiation other than alpha emission has not been considered a serious hazard from plutonium. In general the plutonium isotopes are rather weak sources of soft x-rays. With increase in reactor exposure, and subsequent increase in the percentage of higher plutonium isotopes which decay into radioactive daughter products, the amount of gamma and x-rays has tended to increase. In some cases it is now necessary to limit hand exposure or to wear gloves loaded with lead in order to stay within maximum permissible limits of exposure.

The neutron problem is a conse-

quence of the alpha-neutron reaction with the elements beryllium, boron, lithium, nitrogen, fluorine, sodium, magnesium or aluminum. The alpha-neutron reaction with fluorine may produce a sufficient intensity of neutrons to be a consideration in the chemical processing of plutonium. An alloy of plutonium with beryllium is a commonly used neutron source. Some consideration should be given to the neutron problem in preparation of alloys and in the selection of crucible materials in which to heat plutonium.

(4) *Control of Pyrophoricity and Oxidation*

An additional consideration in handling and fabricating plutonium and its alloys is the fact that under certain conditions they constitute a considerable fire hazard. This hazard is compounded by the criticality and radioactivity problems, making a major fire in a plutonium facility extremely difficult to control.

Fairly large pieces of unalloyed plutonium metal may be handled with reasonable safety. The danger of fire results from (1) finely divided materials such as turnings and powders, (2) unstable and mechanically sensitive hydrides (compounds which may form in moist atmospheres), (3) spontaneously pyrophoric alloys and intermetallic compounds, and (4) spontaneous ignition of impure metallic residues such as partially oxidized crucible skulls.

Plutonium, like other materials, possesses an ignition temperature below which it oxidizes so slowly that the heat of oxidation does not maintain combustion and above which oxidation progresses very rapidly. The ignition temperature varies with the form and composition of the plutonium containing material. Many metallurgical operations with plutonium, such as melting, heat treating, and hot working, must be carried out at temperatures above the ignition temperature. Provision must be made to exclude oxygen when such operations are performed. This is conventionally done in furnaces or containers which are evacuated or flooded with inert gas. Occasionally, in the past, isolated glove boxes have been provided with a protective inert gas atmosphere.

Since 1954, a small plutonium research laboratory has been in operation at Argonne National Laboratory incorporating a system of gas tight interconnecting glove boxes which are supplied with a continuously recirculated and purified helium atmosphere.[3] The special techniques developed for this system provided an unequaled record of contamination safety. These techniques so successfully minimized the hazards of fire and oxidation that the requirement of an inert atmosphere was made for the plutonium Fuel Fabrication Facility.

A plutonium metal fire cannot be fought with water because of the problem of criticality and because water in contact with hot reactive metals releases large amounts of hydrogen which can result in a sec-

ondary explosion. Carbon dioxide is of doubtful value in fighting metal fires. Exclusion of air seems to be the only effective fire fighting procedure which has been developed to date. Dry extinguishers, such as powdered carbon and powdered silica, have been recommended. Because of the alpha radioactivity hazard, fire fighters must be equipped with suitable protective clothing and supplied air masks—preferably "frogman" suits.

Because fire is a serious hazard in a plutonium facility, an effective fire warning device was considered essential in each glove box line of the Fuel Fabrication Facility. A pneumatic temperature rise rate detector developed by the Walter Kidde Corporation was selected. The system installed consists of thin-wall copper tubing passing in a loop below the ceiling of each glove box line through seals in the ends of the line. The tubing then passes in a loop through the housing below the glove boxes.

Gas in the tubing is allowed to escape at a calibrated rate as it expands under normal changes in temperature. In case of fire, the expansion of gas is so rapid that it cannot escape the tubing; the increased pressure closes a bellows switch which sounds the fire alarm. Each hood line is so equipped.

Storage vaults for radioactive materials are provided with tubing on the underside of each alternate shelf as well as below the ceiling of each vault. The system is also extended to laboratory rooms and offices of the entire building. The fire signal operates alarms throughout the building; panel indicator lights show the location of the fire. Relays transmit signals to the Argonne plant security and fire protection departments where the location of the fire is indicated by a code print out machine.

Only so much safety can be built into a plutonium facility. In the long run, safety of operation depends upon the planning and organizaiton of the operations and upon the skill and training of the technicians and staff. Standards of safe operation must be carefully formulated and then put into practice through careful indoctrination of operating personnel. The standards must not be allowed to deteriorate through lack of supervision or discipline. Operating personnel must be carefully screened for attributes of judgment and willingness to submit to the discipline imposed by a formidable taskmaster, plutonium.

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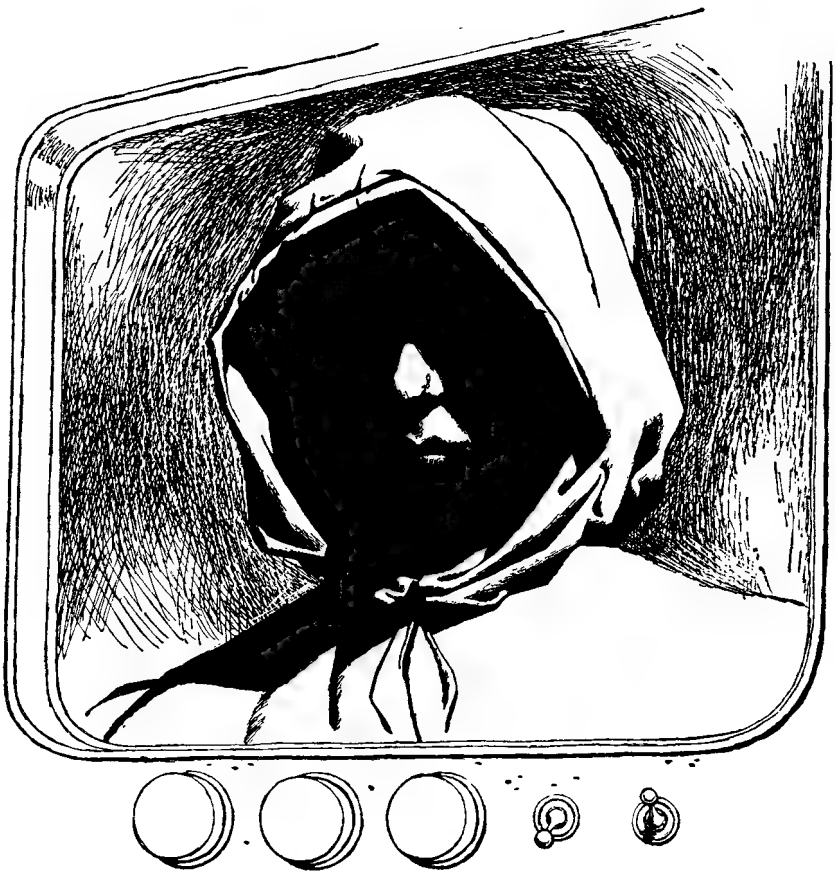
THE END



THE BURNING BRIDGE

BY POUL ANDERSON

Illustrated by van Dongen

Usually there are two "reasons" why something is done; the reason why it needs to be done, and, quite separate, the reason people want to do it. The foul-up starts when the reason-for-wanting is satisfied . . . and the need remains!

HE message was an electronic shout, the most powerful and tightly-beamed short - wave transmission which men could generate, directed with all the precision which mathematics and engineering could offer. Nevertheless that pencil must scrawl broadly over the sky, and for a long time, merely hoping to write on its target. For when distances are measured in light-weeks, the smallest errors grow monstrous.

As it happened, the attempt was successful. Communications Officer Anastas Mardikian had assembled his receiver after acceleration ceased—a big thing, surrounding the flagship *Ranger* like a spiderweb trapping a fly—and had kept it hopefully tuned over a wide band. The radio beam swept through, ghostly faint from dispersion, wave length doubled by Doppler effect, ragged with cosmic noise. An elaborate system of filters and amplifiers could make it no more than barely intelligible.

But that was enough.

Mardikian burst onto the bridge. He was young, and the months had not yet devoured the glory of his first deep-space voyage. "Sir!" he yelled. "A message . . . I just played back the recorder . . . from Earth!"

Fleet Captain Joshua Coffin started. That movement, in weightlessness, spun him off the deck. He stopped himself with a practiced hand, stiffened, and rapped back: "If you haven't yet learned regulations, a week of solitary confinement may give you a chance to study them."

"I . . . but, sir—" The other man retreated. His uniform made a loose rainbow splash across metal and plastic. Coffin alone, of all the fleet's company, held to the black garments of a space service long extinct.

"But, sir," said Mardikian. His voice seemed to have fallen off a high cliff. "Word from Earth!"

"Only the duty officer may enter the bridge without permission," Coffin reminded him. "If you had anything urgent to tell, there is an intercom."

"I thought—" choked Mardikian. He paused, then came to the free-fall equivalent of attention. Anger glittered in his eyes. "Sorry, sir."

Coffin hung quiet a while, looking at the dark young man in the brilliant clothes. *Forget it,* he said to

himself. *Times are another. You went once to e Eridani, and almost ninety years had passed when you returned. Earth was like a foreign planet. This is as good as spacemen get to be nowadays, careless, superstitious, jabbering among each other in languages I don't understand. Thank God there are any recruits at all, and hope He will let there continue to be a few for what remains of your life.*

The duty officer, Hallmyer, was tall and blond and born in Lancashire; but he watched the other two with Asian eyes. No one spoke, though Mardikian breathed heavily. Stars filled the bow viewport, crowding a huge night.

Coffin sighed. "Very well," he said. "I'll let it pass this time."

After all, he reflected, a message from Earth was an event. Radio had, indeed, gone between Sol and Alpha Centauri, but that was with very special equipment. To pinpoint a handful of ships, moving at half the speed of light, and to do it so well that the comparatively small receiver Mardikian had erected would pick up the beam— Yes, the boy had some excuse for gladness.

"What was the signal?" Coffin inquired.

He expected it would only be routine, a test, so that engineers a lifetime hence could ask the returning fleet whether their transmission had registered. (If there were any engineers by then, on an Earth sinking into poverty and mysticism.)

Instead, Mardikian blurted: "Old Svoboda is dead. The new Psychologics Commissioner is Thomas . . . Thomson . . . that part didn't record clearly . . . anyway, he must be sympathetic to the Constitutionalists. He's rescinded the educational decree— promised more consideration to provincial mores. Come hear for yourself, sir!"

Despite himself, Coffin whistled. "But that's why the e Eridani colony was being founded," he said. His words fell flat and silly into silence.

Hallmyer said, with the alien hiss in his English that Coffin hated, for it was like the Serpent in a once noble garden:

"Apparently the colony has no more reason to be started. But how shall we consult with three thousand would-be pioneers lying in deep-sleep?"

"Shall we?" Coffin did not know why—not yet—but he felt his brain move with the speed of fear. "We've undertaken to deliver them to Rustum. In the absence of definite orders from Earth, are we even allowed to consider a change of plans . . . since a general vote can't be taken? Better avoid possible trouble and not even mention—" He broke off. Mardikian's face had become a mask of dismay.

"But, sir!" bleated the Com officer.

A chill rose up in Coffin. "You have already told," he said.

"Yes," whispered Mardikian. "I met Coenrad de Smet, he had come over to this ship for some repair parts, and . . . I never thought—"

"Exactly!" growled Coffin.

The fleet numbered fifteen, more than half the interstellar ships humankind possessed. But Earth's overlords had been as anxious to get rid of the Constitutionalists (the most stubborn ones, at least; the stay-at-homes were *ipso facto* less likely to be troublesome) as that science-minded, liberty-minded group of archaists were to escape being forcibly absorbed by modern society. Rustum, e Eridani II, was six parsecs away, forty-one years of travel, and barely habitable: but the only possible world yet discovered. A successful colony would be prestigious, and could do no harm; its failure would dispose of a thorn in the official ribs. Tying up fifteen ships for eight decades was all right too. Exploration was a dwindling activity, which interested fewer men each generation.

So Earth's government co-operated fully. It even provided speeches and music when the colonists embarked for the orbiting fleet. After which, Coffin thought, the government had doubtless grinned to itself and thanked its various heathen gods that that was over with.

"Only now," he muttered, "it isn't."

He free-sat in the *Ranger's* general room, a tall, bony, faintly grizzled Yankee, and waited. The austerity of the walls was broken by a few pictures. Coffin had wanted to leave them bare—since no one else would care for a view of the church where his father had preached, a hundred years ago, or be interested in a model of that catboat the boy Joshua had sailed on a bay which glittered in summers now forgotten—but even the theoretically absolute power of a fleet captain had its limits. At least the men nowadays were not making this room obscene with naked women. Though in all honesty, he wasn't sure he wouldn't rather have that than . . . brush-strokes on rice paper, the suggestion of a tree, and a classic ideogram. He did not understand the new generations.

The *Ranger* skipper, Nils Kivi, was like a breath of home: a small dapper Finn who had traveled with Coffin on the first e Eridani trip. They were not exactly friends, an admiral has no intimates, but they had been young in the same decade.

Actually, thought Coffin, *most of us spacemen are anachronisms. I could talk to Goldstein or Yamato or Pereira, to quite a few on this voyage, and not meet blank surprise when I mentioned a dead actor or hummed a dead song. But of course, they are all in unaging deepsleep now. We'll stand our one-year watches in turn, and be put back in the coldvats, and have no chance to talk till journey's end.*

"It may prove to be fun," mused Kivi.

"What?" asked Coffin.

"To walk around High America again, and fish in the Emperor River, and dig up our old camp," said Kivi. "We had some fine times on Rustum, along with all the work and danger."

Coffin was startled, that his own thoughts should have been so closely

followed. "Yes," he agreed, remembering strange wild dawns on the Cleft edge, "that was a pretty good five years."

Kivi sighed. "Different this time," he said. "Now that I think about it, I am not sure I do want to go back. We had so much hope then—we were discoverers, walking where men had never even laid eyes before. Now the colonists will be the hopeful ones. We are just their transportation."

Coffin shrugged. "We must take what is given us, and be thankful."

"This time," said Kivi, "I will constantly worry: suppose I come home again and find my job abolished? No more space travel at all. If that happens, I refuse to be thankful."

Forgive him, Coffin asked his God. *It is cruel to watch the foundation of your life being gnawed away.*

Kivi's eyes lit up, the briefest flicker. "Of course," he said, "if we really do cancel this trip, and go straight back, we may not arrive too late. We may still find a few expeditions to new stars being organized, and get on their rosters."

Coffin tautened. Again he was unsure why he felt an emotion: now, anger. "I shall permit no disloyalty to the purpose for which we are engaged," he clipped.

"Oh, come off it," said Kivi. "Be rational. I don't know your reason for undertaking this wretched cruise. You had rank enough to turn down the assignment; no one else did. But you still want to explore as badly as I. If Earth didn't care about us, they would not have bothered to invite us back. Let us seize the opportunity while it lasts." He intercepted a reply by glancing at the wall chrono. "Time for our conference." He flicked the intership switch.

A panel came to life, dividing into fourteen sections, one for each accompanying vessel. One or two faces peered from each. The craft which bore only supplies and sleeping crewmen were represented by their captains. Those which had colonists also revealed a civilian spokesman.

Coffin studied every small image in turn. The spacemen he knew, they all belonged to the Society and even those born long after him had much in common. There was a necessary minimum discipline of mind and body, and the underlying dream for which all else had been traded: new horizons under new suns. Not that spacemen indulged in such poetics; they had too much work to do.

The colonists were something else. Coffin shared things with them—predominantly North American background, scientific habit of thought, distrust of all governments. But few Constitutionalists had any religion; those who did were Romish, Jewish, Buddhist, or otherwise alien to him. All were tainted with the self-indulgence of this era: they had written into their covenant that only physical necessity could justify moralizing legislation, and that free speech was limited only by personal libel. Coffin thought sometimes he would be glad to see the last of them.

"Are you all prepared?" he began. "Very well, let's get down to business. It's unfortunate the Com officer gossiped so loosely. He stirred up a hornet's nest." Coffin saw that few understood the idiom. "He made discontent which threatens this whole project, and which we must now deal with."

Coenrad de Smet, colonist aboard the *Scout,* smiled in an irritating way he had. "You would simply have concealed the fact?" he asked.

"It would have made matters easier," said Coffin stiffly.

"In other words," said de Smet, "you know better what we might want than we do ourselves. That, sir, is the kind of arrogance we hoped to escape. No man has the right to suppress any information bearing on public affairs."

A low voice, with a touch of laughter, said through a hood: "And you accuse Captain Coffin of preaching!"

The New Englander's eyes were drawn to her. Not that he could see through the shapeless gown and mask, such as hid all the waking women; but he had met Teresa Zeleny on Earth. Hearing her now was somehow like remembering Indian summer on a wooded hilltop, a century ago.

An involuntary smile quirked his lips. "Thank you," he said. "Do you, Mr. de Smet, know what the sleeping colonists might want? Have you any right to decide for *them?* And yet we can't wake them, even the adults, to vote. There simply isn't room; if nothing else, the air regenerators couldn't supply that much oxygen. That's why I felt it best to tell no one, until we were actually at Rustum. Then those who wished could return with the fleet, I suppose."

"We could rouse them a few at a time, let them vote, and put them back to sleep," suggested Teresa Zeleny.

"It would take weeks," said Coffin. "You, of all people, should know metabolism isn't lightly stopped, or easily restored."

"If you could see my face," she said, again with a chuckle, "I would grimace amen. I'm so sick of tending inert human flesh that . . . well, I'm glad they're only women and girls, because if I also had to massage and inject men I'd take a vow of chastity!"

Coffin blushed, cursed himself for blushing, and hoped she couldn't see it over the telecircuit. He noticed Kivi grin.

Kivi provided the merciful interruption. "Your few-at-a-time proposal is pointless anyhow," he said. "In the course of those weeks, we would pass the critical date."

"What's that?" asked a young girl's voice.

"You don't know?" said Coffin, surprised.

"Let it pass for now," broke in Teresa. Once again, as several times before, Coffin admired her decisiveness. She cut through nonsense with a man's speed and a woman's practicality. "Take our word for it, June,

if we don't turn about within two months, we'll do better to go on to Rustum. So, voting is out. We could wake a few sleepers, but those already conscious are really as adequate a statistical sample."

Coffin nodded. She spoke for five women on her ship, who stood a year-watch caring for two hundred ninety-five asleep. The one hundred twenty who would not be restimulated for such duty during the voyage, were children. The proportion on the other nine colonist-laden vessels was similar; the crew totaled one thousand six hundred twenty, with forty-five up and about at all times. Whether the die was cast by less than two per cent, or by four or five per cent, was hardly significant.

"Let's recollect exactly what the message was," said Coffin. "The educational decree which directly threatened your Constitutionalist way of life has been withdrawn. You're no worse off now than formerly—and no better, though there's a hint of further concessions in the future. You're invited home again. That's all. We have not picked up any other transmissions. It seems very little data on which to base so large a decision."

"It's an even bigger one, to continue," said de Smet. He leaned forward, a bulky man, until he filled his little screen. Hardness rang in his tones. "We were able people, economically rather well off. I daresay Earth already misses our services, especially in technological fields. Your own report makes Rustum out a grim place; many of us would die there. Why should we not turn home?"

"Home," whispered someone.

The word filled a sudden quietness, like water filling a cup, until quietness brimmed over with it. Coffin sat listening to the voice of his ship, generators, ventilators, regulators, and he began to hear a beat frequency which was *Home, home, home.*

Only his home was gone. His father's church was torn down for an Oriental temple, and the woods where October had burned were cleared for another tentacle of city, and the bay was enclosed to make a plankton farm. For him, only a spaceship remained, and the somehow cold hope of heaven.

A very young man said, almost to himself: "I left a girl back there."

"I had a little sub," said another. "I used to poke around the Great Barrier Reef, skindiving out the air lock or loafing on the surface. You wouldn't believe how blue the waves could be. They tell me on Rustum you can't come down off the mountain tops."

"But we'd have the whole planet to ourselves," said Teresa Zeleny.

One with a gentle scholar's face answered: "That may be precisely the trouble, my dear. Three thousand of us, counting children, totally isolated from the human mainstream. Can we hope to build a civilization? Or even maintain one?"

"Your problem, pop," said the officer beside him dryly, "is that there

are no medieval manuscripts on Rustum."

"I admit it," said the scholar. "I thought it more important my children grow up able to use their minds. But if it turns out they can do so on Earth— How much chance will the first generations on Rustum have to sit down and really think, anyway?"

"Would there even be a next generation on Rustum?"

"One and a quarter gravities—I can feel it now."

"Synthetics, year after year of synthetics and hydroponics, till we can establish an ecology. I had steak on Earth, once in a while."

"My mother couldn't come. Too frail. But she's paid for a hundred years of deepsleep, all she could afford . . . just in case I do return."

"I designed skyhouses. They won't build anything on Rustum much better than sod huts, in my lifetime."

"Do you remember moonlight on the Grand Canyon?"

"Do you remember Beethoven's Ninth in the Federal Concert Hall?"

"Do you remember that funny little Midlevel bar, where we all drank beer and sang *Lieder?*"

"Do you remember?"

"Do you remember?"

Teresa Zeleny shouted across their voices: "In Anker's name! What are you thinking about? If you care so little, you should never have embarked in the first place!"

It brought back the silence, not all at once but piece by piece, until Coffin could pound the table and call for order. He looked straight at her hidden eyes and said: "Thank you, Miss Zeleny. I was expecting tears to be uncorked any moment."

One of the girls snuffled behind her mask.

Charles Lochaber, speaking for the *Courier* colonists, nodded. "Aye, 'tis a blow to our purpose. I am not so sairtain I myself would vote to continue, did I feel the message was to be trusted."

"What?" De Smet's square head jerked up from between his shoulders.

Lochaber grinned without much humor. "The government has been getting more arbitrary each year," he said. "They were ready enough to let us go, aye. But they may regret it now—not because we could ever be any active threat, but because we will be a subversive example, up there in Earth's sky. Or just because we will *be*. Mind ye, I know not for sairtain; but 'tis possible they decided we are safer dead, and this is to trick us back. 'Twould be characteristic dictatorship behavior."

"Of all the fantastic —" gasped an indignant female voice.

Teresa broke in: "Not as wild as you might think, dear. I have read a little history, and I don't mean that censored pap which passes for it nowadays. But there's another possibility, which I think is just as alarming. That message may be perfectly honest and sincere. But will it still be true when we get back? Remember how long that will take! And even if we could return overnight, to an Earth which welcomed us home, what guarantee would there be that our children, or our grandchildren, won't suffer the same troubles as us, without the same chance to break free?"

"Ye vote, then, to carry on?" asked Lochaber.

Pride answered: "Of course."

"Good lass. I, too."

Kivi raised his hand. Coffin recognized him, and the spaceman said: "I am not sure the crew ought not to have a voice in this also."

"What?" De Smet grew red. He gobbled for a moment before he could get out: "Do you seriously think you could elect us to settle on that annex of hell —and then come home to Earth yourselves?"

"As a matter of fact," said Kivi, smiling, "I suspect the crew would prefer to return at once. I know I would. Seven years may make a crucial difference."

"If a colony is planted, though," said Coffin, "it might provide the

very inspiration which space travel needs to survive."

"Hm-m-m. Perhaps. I shall have to think about that."

"I hope you realize," said the very young man with ornate sarcasm, "that every second we sit here arguing takes us one hundred fifty thousand kilometers farther from home."

"Dinna fash yourself," said Lochaber. "Whatever we do, that girl of yours will be an auld carline before you reach Earth."

De Smet was still choking at Kivi: "You lousy little ferryman, if you think you can make pawns of us—"

And Kivi stretched his lips in anger and growled, "If you do not watch your language, you clodhugger, I will come over there and stuff you down your own throat."

"Order!" yelled Coffin. "Order!"

Teresa echoed him: "Please . . . for all our lives' sake . . . don't you know where we are? You've got a few centimeters of wall between you and zero! Please, whatever we do, we can't fight or we'll never see any planet again!"

But she did not say it weeping, or as a beggary. It was almost a mother's voice—strange, in an unmarried woman—and it quieted the male snarling more than Coffin's shouts.

The fleet captain said finally: "That will do. You're all too worked up to think. Debate is adjourned sixteen hours. Discuss the problem with your shipmates, get some sleep, and report the consensus at the next meeting."

"Sixteen hours?" yelped someone. "Do you know how much return time that adds?"

"You heard me," said Coffin. "Anybody who wants to argue may do so from the brig. Dismissed!"

He snapped off the switch.

Kivi, temper eased, gave him a slow confidential grin. "That heavy-father act works nearly every time, no?"

Coffin pushed from the table. "I'm going out," he said. His voice sounded harsh to him, a stranger's. "Carry on."

He had never felt so alone before, not even the night his father died. *O God, who spake unto Moses in the wilderness, reveal now thy will.* But God was silent, and Coffin turned blindly to the only other help he could think of.

Space armored, he paused a moment in the air lock before continuing. He had been an astronaut for twenty-five years—for a century if you added time in the vats—but he could still not look upon naked creation without fear.

An infinite blackness flashed: stars beyond stars, to the bright ghost-road of the Milky Way and on out to other galaxies and flocks of galaxies, until the light which a telescope might now register had been born before the Earth. Looking from his air-lock cave, past the radio web and the other ships, Coffin felt himself drown in enormousness, coldness, and total silence—though he knew that this vacuum burned and roared with man-destroying energies, roiled like

currents of gas and dust more massive than planets and travailed with the birth of new suns—and he said to himself the most dreadful of names, *I am that I am,* and sweat formed chilly little globules under his arms.

This much a man could see within the Solar System. Traveling at half light-speed stretched the human mind still further, till often it ripped across and another lunatic was shoved into deepsleep. For aberration redrew the sky, crowding stars toward the bows, so that the ships plunged toward a cloud of Doppler hell-blue. The constellations lay thinly abeam, you looked out upon the dark. Aft, Sol was still the brightest object in heaven, but it had gained a sullen red tinge, as if already grown old, as if the prodigal would return from far places to find his home buried under ice.

What is man that thou art mindful of him? The line gave its accustomed comfort; for, after all, the Sun-maker had also wrought this flesh, atom by atom, and at the very least would think it worthy of hell. Coffin had never understood how his atheist colleagues endured free space.

Well—

He took aim at the next hull and fired his little spring-powered crossbow. A light line unreeled behind the magnetic bolt. He tested its security with habitual care, pulled himself along until he reached the companion ship, yanked the bolt loose and fired again, and so on from hull to slowly orbiting hull, until he reached the *Pioneer.*

Its awkward ugly shape was like a protective wall against the stars. Coffin drew himself past the ion tubes, now cold. Their skeletal structure seemed impossibly frail to have hurled forth peeled atoms at one half c. Mass tanks bulked around the vessel; allowing for deceleration, plus a small margin, the mass ratio was about nine to one. Months would be required at Rustum to refine enough reaction material for the home voyage. Meanwhile such of the crew as were not thus engaged would help the colony get established—

If it ever did!

Coffin reached the forward air lock and pressed the "doorbell." The outer valve opened for him, and he cycled through. First Officer Karamchand met him and helped him doff armor. The other man on duty found an excuse to approach and listen; for monotony was as corrosive out here as distance and strangeness.

"Ah, sir. What brings you over?"

Coffin braced himself. Embarrassment roughened his tone: "I want to see Miss Zeleny."

"Of course—But why come yourself? I mean, the telecircuit—"

"In person!" barked Coffin.

"What?" escaped the crewman. He propelled himself backward in terror of a wigging. Coffin ignored it.

"Emergency," he snapped. "Please intercom her and arrange for a private discussion."

"Why . . . why . . . yes, sir. At once. Will you wait here . . . I mean . . . yes, sir!" Karamchand shot down the corridor.

Coffin felt a sour smile on his own lips. He could understand if they got confused. His own law about the women had been like steel, and now he violated it himself.

The trouble was, he thought, no one knew if it was even required. Until now there had been few enough women crossing space, and they only within the Solar System, on segregated ships. There was no background of interstellar experience. It seemed reasonable, though, that a man on his year-watch should not be asked to tend deepsleeping female colonists. (Or vice versa!) The idea revolted Coffin personally; but for once the psychotechs had agreed with him. And, of course, waking men and women, freely intermingling, were potentially even more explosive. Haremlike seclusion appeared the only answer; and husband and wife were not to be awake at the same time.

Bad enough to see women veiled when there was a telecircuit conference. (Or did the masks make matters still worse, by challenging the imagination? Who knew?) Best seal off the living quarters and cold-vat sections of the craft which bore them. Crewmen standing watches on those particular ships had better return to their own vessels to sleep and eat.

Coffin braced his muscles. *The rules wouldn't apply if a large meteor struck,* he reminded himself. *What has come up is more dangerous than that. So never mind what anyone thinks.*

Karamchand returned to salute him and say breathlessly: "Miss Zeleny will see you, captain. This way, if you please."

"Thanks." Coffin followed to the main bulkhead, The women had its doorkey. Now the door stood ajar. Coffin pushed himself through so hard that he overshot and caromed off the farther wall.

Teresa laughed. She closed the door and locked it. "Just to make them feel safe out there," she said. "Poor well-meaning men! Welcome, captain."

He turned about, almost dreading the instant. Her tall form was decent in baggy coveralls, but she had dropped the mask. She was not pretty, he supposed: broad-faced, square-jawed, verging on spinsterhood. But he had liked her way of smiling.

"I—" He found no words.

"Follow me." She led him down a short passage, hand-over-hand along the null-gee rungs. "I've warned the other girls to stay away. You needn't fear being shocked." At the end of the hall was a little partitioned-off room. Few enough personal goods could be taken along, but she had made this place hers, a painting, a battered Shakespeare, the works of Anker, a microplayer. Her tapes ran to Bach, late Beethoven and Strauss, music which could be studied endlessly. She took hold of a stanchion and nodded, all at once grown serious.

"What do you want to ask me, captain?"

Coffin secured himself by the crook of an arm and stared at his hands. The fingers strained against each other. "I wish I could give you a clear reply," he said, very low and with difficulty. "You see, I've never met anything like this before. If it involved only men, I guess I could handle the problem. But there are women along, and children."

"And you want a female viewpoint. You're wiser than I had realized. But why me?"

He forced himself to meet her eyes. "You appear the most sensible of the women awake."

"Really!" She laughed. "I appreciate the compliment, but must you deliver it in that parade-ground voice, and glare at me to boot? Relax, captain." She cocked her head, studying him. Then: "Several of the girls don't get this business of the critical point. I tried to explain, but I was only an R.N. at home, and I'm afraid I muddled it rather. Could you put it in words of one and a half syllables?"

"Do you mean the equal-time point?"

"The Point of No Return, some of them call it."

"Nonsense! It's only— Well, look at it this way. We accelerated from Sol at one gravity. We dare not apply more acceleration, even though we could, because so many articles aboard have been lightly built to save mass—the coldvats, for example. They'd collapse under their own weight, and the persons within would die, if we went as much as one-point-five gee. Very well. It took us about one hundred eighty days to reach maximum velocity. In the course of that period, we covered not quite one-and-a-half light-months. We will now go free for almost forty years. At the end of that time, we'll decelerate at one gee for some one hundred eighty days, covering an additional light-month and a half, and enter the e Eridani System with low relative speed. Our star-to-star orbit was plotted with care, but of course the errors add up to many Astronomical Units; furthermore, we have to maneuver, put our ships in orbit about Rustum, send ferry craft back and forth. So we carry a reaction-mass reserve which allows us a total velocity change of about one thousand kilometers per second after journey's end.

"Now imagine we had changed our minds immediately after reaching full speed. We'd still have to decelerate in order to return. So we'd be almost a quarter light-year from Sol, a year after departure, before achieving relative rest. Then, to come back three light-months at one thousand K.P.S. takes roughly seventy-two years. But the whole round trip as originally scheduled, with a one-year layover at Rustum, runs just about eighty-three years!

"Obviously there's some point in time beyond which we can actually get home quicker by staying with the original plan. This date lies after eight months of free fall, or not quite fourteen months from departure. We're only a couple of months from the critical moment right now; if we

start back at once, we'll still have been gone from Earth for about seventy-six years. Each day we wait adds months to the return trip. No wonder there's impatience!"

"And the relativity clock paradox makes it worse," Teresa said.

"Well, not too much," Coffin decided. "The tau factor is 0.87. Shipboard time during eighty years of free fall amounts to about seventy years; so far the difference isn't significant. And anyhow, we'll all spend most of the time in deepsleep. What they're afraid of, the ones who want to go back, is that the Earth they knew will have slipped away from them."

She nodded. "Can't they understand it already has?" she said.

It was like a blade stabbed into Coffin. Though he could not see why that should be: surely he, of all men, knew how relentlessly time flowed. He had already come back once, to an Earth scarcely recognizable. The Society had been a kind of fixed point, but even it had changed; and he—like Kivi, like all of them—was now haunted by the fear of returning again and not finding any other spacemen whatsoever.

But when she spoke it—

"Maybe they're afraid to understand," he said.

"You keep surprising me, captain," said Teresa with a hint of her smile. "You actually show a bit of human sympathy."

And, thought a far-off part of Coffin, *you showed enough to put me at ease by getting me to lecture you with safe impersonal figures.* But he didn't mind. The fact was that now he could free-sit, face to face, alone, and talk to her like a friend.

"Since we could only save about seven years by giving up at once," he said, "I admit I'm puzzled why so many people are so anxious about it. Couldn't we go on as planned and decide things at Rustum?"

"I think not," said Teresa. "You see, nobody in his right mind wants to be a pioneer. To explore, yes; to settle rich new country with known and limited hazards, yes; but not to risk his children, his whole racial future, on a wild gamble. This group was driven into space by a conflict which just couldn't be settled at home. If that conflict has ended—"

"But . . . you and Lochaber . . . you pointed out that it had *not* ended. That at best this is a breathing spell."

"Still, they'd like to believe otherwise, wouldn't they? I mean, at least believe they have a fighting chance on Earth."

"All right," said Coffin. "But it looks a safe bet, that there are a number of deepsleepers who'd agree with you, who'd think their chances are actually better on Rustum. Why can't we take them there first? It seems only fair."

"Uh-uh." Her hair was short, but it floated in loose waves when she shook her head, and light rippled mahogany across it. "You've been there and I haven't, but I've studied your reports. A handful couldn't survive. Three thousand is none too

many. It will have to be unanimous, whatever is decided."

"I was trying to avoid that conclusion," he said wearily, "but if you agree— Well, can't we settle the argument at Rustum, after they've looked the place over?"

"No. And I'll tell you why, captain," she said. "I know Coenrad de Smet well, and one or two others. Good men . . . don't get me wrong . . . but born politicians, intuitive rather than logical thinkers. They believe, quite honestly, it's best to go back. And, of course, the timid and lazy and selfish ones will support them. They don't want to risk having Rustum there, a whole new world for the taking—and the vote to go against them. I've seen plenty of your photographs, captain. They were so beautiful, some of them, that I can hardly wait for the reality. I know—and so does de Smet—High America is a magnificent place. Room, freedom, unpoisoned air. We'll remember all that we hated on Earth and that isn't on Rustum; we'll reflect much more soberly how long a time will have passed before we could possibly get back, and what a gamble we'd be taking on finding a tolerable situation there. The extra quarter gee won't seem so bad till it's time for heavy manual labor; the alien biochemistry won't bother us much till we have to stop eating rations and start trying to farm; the isolation won't really be felt till your spaceships have departed and we're all the humanity there is for more than twenty light-years.

"No . . . de Smet won't risk it. He might get caught up in the glamour himself!"

Coffin murmured thoughtfully: "After only a few days of deceleration, there won't be enough reaction mass to do anything but continue home."

"De Smet knows that, too," said Teresa. "Captain, you can make a hard decision and stick to it. That's why you have your job. But maybe you forget how few people can—how most of us pray someone will come along and tell us what to do. Even under severe pressure, the decision to go to Rustum was difficult. Now that there's a chance to undo it, go back to being safe and comfortable—but still a real risk that by the time we get home, Earth will no longer be safe *or* comfortable—we've been forced to decide all over again. It's agony, captain! De Smet is a strong man, in his way. He'll compel us to do the irrevocable, as soon as possible, just because it will make a final commitment. Once we've turned far enough back, it'll be out of our hands and we can stop thinking."

He regarded her with a sort of wonder. "But you look calm enough," he said.

"I made my decision back on Earth," she answered. "I've seen no reason to change it."

"What do the women think?" he asked, leaping back to safely denumerable things.

"Most want to give up, of course." She said it with a mildness which

softened the judgment. "Few of them really wanted to come in the first place. They did so only because their men insisted. Women are much too practical to care about a philosophy, or a frontier, or anything except their families."

"Do you?" he challenged her.

She shrugged ruefully. "I've no family, captain. At the same time, I suppose . . . a sense of humor? . . . kept me from sublimating it into a Cause of any kind." Counterattacking: "Why do you care what we do, captain?"

"Why?" He was taken aback, and found himself stammering. "Why . . . because . . . I'm in charge—"

"Oh, yes. But isn't it more than that? You spent years on Earth lecturing about Rustum and its colonization. I think it must be a deep symbol to you. Don't worry, I won't go analytic. I happen to think, myself, that this colony is enormously important, objectively speaking, I mean. If our race muffs this chance, we may never get another. But you and I wouldn't care about that, not really, unless it was personally important too. Would we? Why did you accept this thankless job, commanding a colonial fleet? It can't be an itch to explore. Rustum's already been visited once, and you'll have precious little time to carry on any further studies. You could have been off to some star where men have never traveled at all. Do you see, captain? You're not a bit more cold-blooded about this than I. You *want* that colony planted."

She stopped, laughed, and color went across her face. "Oh, dear, I do chatter, don't I? Pardon me. Let's get back to business."

"I think," said Coffin, slowly and jaggedly, "I'm beginning to realize what's involved."

She settled back and listened.

He bent a leg around a stanchion to hold his lean black frame in place and beat one fist softly into the palm of another. "Yes, it is an emotional issue," he said, the words carving the thoughts to shape. "Logic has nothing to do with it. There are some who want so badly to go to Rustum and be free, or whatever they hope to be there, that they'll dice with their lives for the privilege—and their wives' and children's lives. Others went reluctantly, against their own survival instincts, and now that they think they see a way of retreat, something they can justify to themselves, they'll fight any man who tries to bar it. Yes. It's a ghastly situation.

"One way or another, the decision has got to be made soon. And the facts can't be hidden. Every deep-sleeper must be wakened and nursed to health by someone now conscious. The word will pass, year after year, always to a different combination of spacemen and colonists, with always a proportion who're furious about what was decided while they slept. No, furious is too weak a word. Onward or backward, whichever way we go, we've struck at the emotional roots of people. And interstellar space can break the calmest men. How long before just the wrong per-

centage of malcontents, weaklings, and shaky sanities goes on duty? What's going to happen then?"

He sucked in an uneven breath. "I'm sorry," he faltered. "I should not—"

"Blow off steam? Why not?" she asked calmly. "Would it be better to keep on being the iron man, till one day you put a pistol to your head?"

"You see," he said in his misery, "I'm *responsible.* Men and women . . . all the little children— But I'll be in deepsleep. I'd go crazy if I tried to stay awake the whole voyage; the organism can't take it. I'll be asleep, and there'll be nothing I can do, but these ships were given into my care!"

He began to shiver. She took both his hands. Neither of them spoke for a long while.

When he left the *Pioneer,* Coffin felt oddly hollow, as if he had opened his chest and pulled out heart and lungs. But his mind functioned with machine precision. For that he was grateful to Teresa: she had helped him discover what the facts were. It

was a brutal knowledge, but without such understanding the expedition might well be doomed.

Or might it? Dispassionately, now, Coffin estimated chances. Either they went on to Rustum or they turned back; in either case, the present likelihood of survival was—fifty-fifty? Well, you couldn't gauge it in percentages. Doubtless more safety lay in turning back. But even there the odds were such that no sane man would willingly gamble. Certainly the skipper had no right to take the hazard, if he could avoid it by any means.

But what means were there?

As he hauled himself toward the *Ranger,* Coffin watched the receiver web grow in his eyes, till it snared a distorted Milky Way. It seemed very frail to have carried so much hell. And, indeed, it would have to be dismantled before deceleration. No trick to sabotage the thing. *If only I had known!*

Or if someone on Earth, the villain or well-meaning fool or whatever he was who wrote that first message . . . if only he would send another. "Ignore preceding. Educational decree still in force." Or something. But no. Such things didn't happen. A man had to make his own luck, in an angry world.

Coffin sighed and clamped bootsoles to his flagship's air lock.

Mardikian helped him through. When he removed his hoarfrosted space helmet, Coffin saw how the boy's mouth quivered. A few hours had put years on Mardikian.

He was in medical whites. Unnecessarily, to break the silence with any inane remark, Coffin said: "Going on vat duty, I see."

"Yes, sir." A mutter. "My turn." The armor made a lot of noise while they stowed it. "We'll need some more ethanol soon, captain," blurted Mardikian desperately.

"What for?" grumbled Coffin. He had often wished the stuff were not indispensable. He alone had the key to its barrel. Some masters allowed a small liquor ration on voyage, and said Coffin was only disguising prejudice in claiming it added risk. ("What the devil *can* happen in interstellar orbit? The only reason anyone stays conscious at all is, the machinery to care properly for sleepers would mass more than the extra supplies do. You can issue the grog when a man comes off watch, can't you? Oh, never mind, never mind! I'm just grateful I don't ship under you!")

"Gammagen fixative . . . and so on . . . sir," stumbled Mardikian. "Mr. Hallmyer will . . . make the requisition as usual."

"All right." Coffin faced his radio man, captured the fearful eyes and would not let them go. "Have there been any further communications?" he snapped.

"From Earth? No. No, sir. I . . . I wouldn't really expect it . . . we're about at the . . . the . . . the limit of reception now. It's almost a miracle, sir, I suppose, that we picked up the first. Of course, we might get an-

other—" Mardikian's voice trailed off.

Coffin continued to stare. At last: "They've been giving you a hard time, haven't they?"

"What?"

"The ones like Lochaber, who want to go on. They wish you'd had the sense to keep your mouth shut, at least till you consulted me. And then others, like de Smet, have said the opposite. Even over telecircuit, it's no fun being a storm center, is it?"

"No, sir—"

Coffin turned away. Why torment the fellow more? This thing had happened, that was all. And the fewer who realized the danger, and were thereby put under still greater strain, the less that danger would be.

"Avoid such disputes," said Coffin. "Most especially, don't brood over those which do arise. That's just begging for a nervous breakdown—out here. Carry on."

Mardikian gulped and went aft.

Coffin drifted athwartships. The vessel thrummed around him.

He was not on watch, and had no desire to share the bridge with whoever was. He should eat something, but the idea was nauseating; he should try to sleep, but that would be useless. How long had he been with Teresa, while she cleared his mind and gave him what comfort she had to offer? A couple of hours. In fourteen hours or less, he must confront the spokesmen of crew and colonists. And meanwhile the fleet seethed.

On Earth, he thought wearily, a choice between going on and turning back would not have drawn men so close to insanity, even if the time elements had been the same. But Earth was long domesticated. Maybe, centuries ago, when a few wind-powered hulks wallowed forth upon hugeness, unsure whether they might sail off the world's edge—maybe then there had been comparable dilemmas. Yes . . . hadn't Columbus' men come near mutiny? Even unknown, though, and monster-peopled by superstition, Earth had not been as cruel an environment as space; nor had a caravel been as unnatural as a spaceship. Minds could never have disintegrated as quickly in midocean as between the stars.

Coffin grew aware, startled, that he had wandered to the radio shack.

He entered. It was a mere cubbyhole, one wall occupied by gleaming electronic controls, the rest full of racked equipment, tools, testers, spare parts, half-assembled units for this and that special purpose. The fleet did not absolutely need a Com officer—any spaceman could do the minimal jobs, and any officer had intensive electronics training—but Mardikian was a good, conscientious, useful technician.

His trouble was, perhaps, only that he was human.

Coffin pulled himself to the main receiver. A tape whirred slowly between spools, preserving what the web gathered. Coffin looked at a clipboard. Mardikian had written half an hour ago: "Nothing received. Tape wiped and reset, 1530 hr." Maybe

since then—? Coffin flipped a switch. A scanner went quickly through the recording, found only cosmic noise—none of the orderliness which would have meant code or speech—and informed the man.

Now if it had just—

Coffin grew rigid. He floated among the mechanisms for a long time, blank-eyed as they, and alone the quick harsh breath showed him to be alive.

O God, help me do that which is right.

But what is right?

I should wrestle with Thy angel until I knew. But there is no time. Lord, be not wroth with me because I have no time.

Anguish ebbed. Coffin got busy.

Decision would be reached at the meeting, fourteen hours hence. A message which was to make a substantial difference ought to be received before then. But not very much before; nor too late, eleventh-hour-reprieve style, either.

But first, what should its wording be? Coffin didn't have to look up the last one. It was branded on his brain. An invitation to return and talk matters over. But necessarily short, compact, with minimum redundancy: which meant an increased danger of misinterpretation.

He braced himself before the typer and began to compose, struck out his first words and started again, and again and again. It had to be exactly right. A mere cancellation of the previous message wouldn't do after all. Too pat. And a suspicion, brooded on during a year-watch, could be as deadly as an outright sense of betrayal. So . . .

Since fleet now approaching equal-time point, quick action necessary. Colonization plans abandoned. Expedition ordered, repeat ordered to return to Earth. Education decree already rescinded (a man back home wouldn't be certain the first beam had made contact) *and appeals for further concessions will be permitted through proper channels. Constitutionalists reminded that their first duty is to put their skills at disposal of society.*

Would that serve? Coffin read it over. It didn't contradict the first one; it only changed a suggestion to a command, as if someone were growing more frantic by the hour. (And a picture of near-chaos in government wasn't attractive, was it?) The bit about "proper channels" underlined that speech was not free on Earth, and that the bureaucracy could restore the school decree any time it wished. The pompous last sentence ought to irritate men who had turned their backs on the thing which Terrestrial society was becoming.

Maybe it could be improved, though— Coffin resumed work.

When he ripped out his last version, he was astonished to note that two hours had passed. Already? The ship seemed very quiet. Too quiet. He grew feverishly aware that anyone might break in on him at any time.

The tape could run for a day, but

was usually checked and wiped every six or eight hours. Coffin decided to put his words on it at a spot corresponding to seven hours hence. Mardikian would have come off vat duty, but probably be asleep; he wouldn't play back until shortly before the council meeting.

Coffin turned to a small auxiliary recorder. He had to tape his voice through a circuit which would alter it beyond recognition. And, of course, the whole thing had to be blurred, had to fade and come back, had to be full of squeals and buzzes and the crackling talk of the stars. No easy job to blend all those elements, in null-gee at that. Coffin lost himself in the task. He dared not do otherwise, for then he would be alone with himself.

Plug in this modulator, add an oscillation— Let's see, where's that slide rule, what quantities do you want for—

"What are you doing?"

Coffin twisted about. Fingers clamped on his heart.

Mardikian floated in the doorway, looking dazed and afraid as he saw who the intruder was. "What's wrong, sir?" he asked.

"You're on watch," breathed Coffin.

"Tea break, sir, and I thought I'd check and—" The boy pushed himself into the shack. Coffin saw him framed in meters and transformer banks, like some futuristic saint. But sweat glistened on the dark young face, broke free and drifted in tiny spheroids toward the ventilator.

"Get out of here," said Coffin thickly. And then: "No! I don't mean that! Stay where you are!"

"But—" Almost, the captain could read a mind: *If the old man has gone space-dizzy, name of fate, what's to become of us all?* "Yes, sir."

Coffin licked sandy lips. "It's O.K.," he said. "You surprised me, our nerves are on edge. That's why I hollered."

"S-s-sorry, sir."

"Anyone else around?"

"No, sir. All on duty or—" *I shouldn't have told him that!* Coffin read. *Now he knows I'm alone with him!*

"It's O.K., son," repeated the captain. But his voice came out like a buzz saw cutting through bone. "I had a little project here I was, uh, playing with, and . . . uh—"

"Yes, sir. Of course." *Humor him till I can get away. Then see Mr. Kivi. Let him take the responsibility. I don't want it! I don't want to be the skipper, with nobody between me and the sky. It's too much. It'll crack a man wide open.*

Mardikian's trapped eyes circled the little room. They fell on the typer, and the drafts which Coffin had not yet destroyed.

Silence closed in.

"Well," said Coffin at last. "Now you know."

"Yes, sir." Mardikian could scarcely be heard.

"I'm going to fake this onto the receiver tape."

"B-b . . . Yes, sir." *Humor him!*

Mardikian was drawn bowstring tight, his nostrils flared by terror.

"You see," rasped Coffin, "it has to look genuine. This ought to get their backs up. They'll be more united on colonizing Rustum than they ever were before. At the same time, I can resist them, claim I have my orders to turn about and don't want to get into trouble. Finally, of course, I'll let myself be talked into continuing, however reluctantly. So no one will suspect me of . . . fraud."

Mardikian's lips moved soundlessly. He was close to hysteria, Coffin saw.

"It's unavoidable," the captain said, and cursed himself for the roughness in his tone. Though maybe no orator could persuade this boy. What did he know of psychic breaking stress, who had never been tried to his own limit? "We'll have to keep the secret, you and I, or—" No, what was the use? Within Mardikian's small experience, it was so much more natural to believe that one man, Coffin, had gone awry, than to understand a month-by-month rotting of the human soul under loneliness and frustration.

"Yes, sir," Mardikian husked. "Of course, sir."

Even if he meant that, Coffin thought, *he might talk in his sleep. Or I might; but the admiral, alone of all the fleet, has a completely private room.*

He racked his tools, most carefully, and faced about. Mardikian shoved away, bulging-eyed. "No," whispered Mardikian. "No. Please."

He opened his mouth to scream, but he didn't get time. Coffin chopped him on the neck. As he doubled up, Coffin gripped him with legs and one hand, balled the other fist, and hit him often in the solar plexus.

Mardikian rolled in the air like a drowned man.

Swiftly, then, Coffin towed him down the corridor, to the pharmacy room. He unlocked the alcohol barrel, tapped a hypo, diluted it with enough water, and injected. Lucky the fleet didn't carry a real psychiatrist; if you broke, you went into deepsleep and weren't revived till you got home again to the clinics.

Coffin dragged the boy to a point near the air lock. Then he shouted. Hallmyer came from the bridge. "He started raving and attacked me," panted the captain. "I had to knock him out."

Mardikian was revived for a checkup, but since he only mumbled incoherently, he was given a sedative. Two men began processing him for the vat. Coffin said he would make sure that the Com officer hadn't damaged any equipment. He went back to the shack.

Teresa Zeleny met him. She did not speak, but led him to her room again.

"Well," he said, strangling on it, "so we're continuing to Rustum, by unanimous vote. Aren't you happy?"

"I was," she said quietly, "till now, when I see that you aren't. I hardly think you're worried about legal trouble on Earth; you have au-

thority to ignore orders if the situation warrants. So what is the matter?"

He stared beyond her. "I shouldn't have come here at all," he said. "But I had to talk with someone, and only you might understand. Will you bear with me a few minutes? I won't bother you again."

"Not till Rustum." Her smile was a gesture of compassion. "And it's no bother." After waiting a bit: "What did you want to say?"

He told her, in short savage words.

She grew a little pale. "The kid was actually dead drunk, and they didn't know it when they processed him?" she said. "That's a grave risk. He might not live."

"I know," said Coffin, and covered his eyes.

Her hand fell on his shoulder. "I suppose you've done the only possible thing," she said with much gentleness. "Or, if there was a better way, you didn't have time to think of it."

He said through his fingers, while his head turned away from her: "If you don't tell on me, and I know you won't, then you're violating your own principles, too: total information, free discussion and decision. Aren't you?"

She sighed. "I imagine so. But don't all principles have their limits? How libertarian, or kind . . . how human can you be, out here?"

"I shouldn't have told you."

"I'm glad you did."

Then, briskly, as if she, too, fled something, the woman said: "The truth is bound to come out when your fleet returns to Earth, so we'll need to work out a defense for you. Or is necessity enough?"

"It doesn't matter." He raised his head, and now he could again speak steadily. "I don't figure to skulk more than I must. Let them say what they will, eight decades from now. I'll already have been judged."

"What?" She retreated a little, perhaps to see the gaunt form better. "You don't mean you'll stay on Rustum? But it isn't necessary!"

"A liar . . . quite likely a murderer . . . I am not worthy to be the master of a ship." His voice cracked over. "And maybe, after all, there isn't going to be any more space travel to come home to."

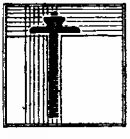
He jerked free of her and went through the door. She stared after him. She had better let him out; no, the key had been left in the bulkhead lock. She had no excuse to follow.

You aren't alone, Joshua, she wanted to call. *Every one of us is beside you. Time is the bridge that always burns behind us.*

THE END

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

VIEWPOINT.



HERE was a dizzy, sickening whirl of mental blackness — not true blackness, but a mind-enveloping darkness that was filled with the multi-colored little sparks of thoughts and memories that scattered through the darkness like tiny glowing mice, fleeing from something unknown, fleeing outwards and away toward a somewhere that was equally unknown; scurrying, moving, changing — each half recognizable as it passed, but leaving only a vague impression behind.

Memories were shattered into their component data bits in that maelstrom of not-quite-darkness, and scattered throughout infinity and eternity. Then the pseudo-dark stopped its violent motion and became still, no longer scattering the fleeing memories, but merely blanketing them. And slowly—ever so slowly—the powerful cohesive forces that existed between the data-bits began pulling them back together again as the not-blackness faded. The associative powers of the mind began putting the frightened little things together as they drifted back in from vast dis-

A fearsome thing is a thing you're afraid of—and it has nothing whatever to do with whether others are afraid, nor with whether it is in fact dangerous. It's your view of the matter that counts!

BY RANDALL GARRETT

Illustrated by Bernklau

tances, trying to fit them together again in an ordered whole. Like a vast jigsaw puzzle in five dimensions, little clots and patches formed as the bits were snuggled into place here and there.

The process was far from complete when Broom regained consciousness.

Broom sat up abruptly and looked around him. The room was totally unfamiliar. For a moment, that seemed perfectly understandable. Why shouldn't the room look odd, after he had gone through—

What?

He rubbed his head and looked around more carefully. It was not just that the room itself was unfamiliar as a whole; the effect was greater than that. It was not the first time in his life he had regained consciousness in unfamiliar surroundings, but always before he had been aware that only the pattern was different, not the details.

He sat there on the floor and took stock of himself and his surroundings.

He was a big man—six feet tall when he stood up, and proportionately heavy, a big-boned frame covered with hard, well-trained muscles. His hair and beard were a dark blond, and rather shaggy because of the time he'd spent in prison.

Prison!

Yes, he'd been in prison. The rough clothing he was wearing was certainly nothing like the type of dress he was used to.

He tried to force his memory to give him the information he was looking for, but it wouldn't come. A face flickered in his mind for a moment, and a name. Contarini. He seemed to remember a startled look on the Italian's face, but he could neither remember the reason for it nor when it had been. But it would come back; he was sure of that.

Meanwhile, where the devil was he?

From where he was sitting, he could see that the room was fairly large, but not extraordinarily so. A door in one wall led into another room of about the same size. But they were like no other rooms he had ever seen before. He looked down at the floor. It was soft, almost as soft as a bed, covered with a thick, even, resilient layer of fine material of some kind. It was some sort of carpeting that covered the floor from wall to wall, but no carpet had ever felt like this.

He lifted himself gingerly to his feet. He wasn't hurt, at least. He felt fine, except for the gaps in his memory.

The room was well lit. The illumination came from the ceiling, which seemed to be made of some glowing, semitranslucent metal that cast a shadowless glow over everything. There was a large, bulky table near the wall away from the door; it looked almost normal, except that the objects on it were like nothing that had ever existed. Their purposes were unknown, and their shapes meaningless.

He jerked his head away, not wanting to look at the things on the table.

The walls, at least, looked familiar. They seemed to be paneled in some fine wood. He walked over and touched it.

And knew immediately that, no matter what it looked like, it wasn't wood. The illusion was there to the eye, but no wood ever had such a hard, smooth, glasslike surface as this. He jerked his fingertips away.

He recognized, then, the emotion that had made him turn away from the objects on the table and pull his hand away from the unnatural wall. It was fear.

Fear? Nonsense! He put his hand out suddenly and slapped the wall with his palm and held it there. There was nothing to be afraid of!

He laughed at himself softly. He'd faced death a hundred times during the war without showing fear; this was no time to start. What would his men think of him if they saw him getting shaky over the mere touch of a woodlike wall?

The memories were coming back. This time, he didn't try to probe for them; he just let them flow.

He turned around again and looked deliberately at the big, bulky table. There was a faint humming noise coming from it which had escaped his notice before. He walked over to it and looked at the queerly-shaped things that lay on its shining surface. He had already decided that the table was no more wood than the wall, and a touch of a finger to the surface verified the decision.

The only thing that looked at all familiar on the table was a sheaf of written material. He picked it up and glanced over the pages, noticing the neat characters, so unlike any that he knew. He couldn't read a word of it. He grinned and put the sheets back down on the smooth table top.

The humming appeared to be coming from a metal box on the other side of the table. He circled around and took a look at the thing. It had levers and knobs and other projections, but their functions were not immediately discernible. There were several rows of studs with various unrecognizable symbols on them.

This would certainly be something to tell in London—when and if he ever got back.

He reached out a tentative finger and touched one of the symbol-marked studs.

There was a loud *click!* in the stillness of the room, and he leaped back from the device. He watched it warily for a moment, but nothing more seemed to be forthcoming. Still, he decided it might be best to let things alone. There was no point in messing with things that undoubtedly controlled forces beyond his ability to cope with or understand. After all, such a long time—

He stopped, Time? *Time?*

What had Contarini said about time? Something about its being like a river that flowed rapidly—that much he remembered. Oh, yes—and that it was almost impossible to try

to swim backwards against the current or . . . something else. What?

He shook his head. The more he tried to remember what his fellow prisoner had told him, the more elusive it became.

He had traveled in time, that much was certain, but how far, and in which direction? Toward the future, obviously; Contarini had made it plain that going into the past was impossible. Then could he, Broom, get back to his own time, or was he destined to stay in this — place? Wherever and whenever it was.

Evidently movement through the time-river had a tendency to disorganize a man's memories. Well, wasn't that obvious anyway? Even normal movement through time, at the rate of a day per day, made some memories fade. And some were lost entirely, while others remained clear and bright. What would a sudden jump of centuries do?

His memory was improving, though. If he just let it alone, most of it would come back, and he could orient himself. Meanwhile, he might as well explore his surroundings a little more. He resolved to keep his hands off anything that wasn't readily identifiable.

There was a single oddly-shaped chair by the bulky table, and behind the chair was a heavy curtain which apparently covered a window. He could see a gleam of light coming through the division in the curtains.

Broom decided he might as well get a good look at whatever was outside the building he was in. He stepped over, parted the curtains, and—

— And gasped!

It was night time outside, and the sky was clear. He recognized the familiar constellations up there. But they were dimmed by the light from the city that stretched below him.

And what a city! At first, it was difficult for his eyes to convey their impressions intelligently to his brain. What they were recording was so unfamiliar that his brain could not decode the messages they sent.

There were broad, well-lit streets that stretched on and on, as far as he could see, and beyond them, glittering fairy bridges rose into the air and arched into the distance. And the buildings towered over everything. He forced himself to look down, and it made him dizzy. The building he was in was so high that it would have projected through the clouds if there had been any clouds.

Broom backed away from the window and let the curtain close. He'd had all of that he could take for right now. The inside of the building, his immediate surroundings, looked almost homey after seeing that monstrous, endless city outside.

He skirted the table with its still-humming machine and walked toward the door that led to the other room. A picture hanging on a nearby wall caught his eye, and he stopped. It was a portrait of a man in unfamiliar, outlandish clothing, but Broom had seen odder clothing in his travels. But the thing that had stopped him was the amazing reality

of the picture. It was almost as if there were a mirror there, reflecting the face of a man who stood invisibly before it.

It wasn't, of course; it was only a painting. But the lifelike, somber eyes of the man were focused directly on him. Broom decided he didn't like the effect at all, and hurried into the next room.

There were several rows of the bulky tables in here, each with its own chair. Broom's footsteps sounded loud in the room, the echoes rebounding from the walls. He stopped and looked down. This floor wasn't covered with the soft carpeting; it had a square, mosaic pattern, as though it might be composed of tile of some kind. And yet, though it was harder than the carpet it had a kind of queer resiliency of its own.

The room itself was larger than the one he had just quitted, and not as well lit. For the first time, he thought of the possibility that there might be someone else here besides himself. He looked around, wishing that he had a weapon of some kind. Even a knife would have made him feel better.

But there had been no chance of that, of course. Prisoners of war are hardly allowed to carry weapons with them, so none had been available.

He wondered what sort of men lived in this fantastic city. So far, he had seen no one. The streets below had been filled with moving vehicles of some kind, but it had been difficult to tell whether there had been anyone walking down there from this height.

Contarini had said that it would be . . . how had he said it? "Like sleeping for hundreds of years and waking up in a strange world."

Well, it was that, all right.

Did anyone know he was here? He had the uneasy feeling that hidden, unseen eyes were watching his every move, and yet he could detect nothing. There was no sound except the faint humming from the device in the room behind him, and a deeper, almost inaudible, rushing, rumbling sound that seemed to come from far below.

His wish for a weapon came back, stronger than before. The very fact that he had seen no one set his nerves on edge even more than the sight of a known enemy would have done.

He was suddenly no longer interested in his surroundings. He felt trapped in this strange, silent room. He could see a light shining through a door at the far end of the room—perhaps it was a way out. He walked toward it, trying to keep his footsteps as silent as possible as he moved.

The door had a pane of translucent glass in it, and there were more of the unreadable characters on it. He wished fervently that he could decipher them; they might tell him where he was.

Carefully, he grasped the handle of the door, twisted it, and pulled. And, careful as he had been, the door swung inward with surprising rapidity. It was a great deal thinner and lighter than he had supposed.

He looked down at it, wondering

if there were any way the door could be locked. There was a tiny vertical slit set in a small metal panel in the door, but it was much too tiny to be a keyhole. Still—

It didn't matter. If necessary, he could smash the glass to get through the door. He stepped out into what was obviously a hallway beyond the door.

The hallway stretched away to either side, lined with doors similar to the one he had just come through. How did a man get out of this place, anyway? The door behind him was pressing against his hand with a patient insistence, as though it wanted to close itself. He almost let it close, but, at the last second, he changed his mind.

Better the devil we know than the devil we don't, he thought to himself.

He went back into the office and looked around for something to prop the door open. He found a small, beautifully formed porcelain dish on one of the desks, picked it up, and went back to the door. The dish held the door open an inch or so. That was good enough. If someone locked the door, he could still smash in the glass if he wanted to, but the absence of the dish when he returned would tell him that he was not alone in this mysterious place.

He started down the hallway to his right, checking the doors as he went. They were all locked. He knew that he could break into any of them, but he had a feeling that he would find no exit through any of them. They all looked as though they concealed more of the big rooms.

None of them had any lights behind them. Only the one door that he had come through showed the telltale glow from the other side. Why?

He had the terrible feeling that he had been drawn across time to this place for a purpose, and yet he could think of no rational reason for believing so.

He stopped as another memory came back. He remembered being in the stone-walled dungeon, with its smelly straw beds, lit only by the faint shaft of sunlight that came from the barred window high overhead.

Contarini, the short, wiry little Italian who was in the next cell, looked at him through the narrow opening. "I still think it can be done, my friend. It is the mind and the mind alone that sees the flow of time. The body experiences, but does not see. Only the soul is capable of knowing eternity."

Broom outranked the little Italian, but prison can make brothers of all men. "You think it's possible then, to get out of a place like this, simply by thinking about it?"

Contarini nodded. "Why not? Did not the saints do so? And what was that? Contemplation of the Eternal, my comrade; contemplation of the Eternal."

Broom held back a grin. "Then why, my Venetian friend, have you not left this place long since?"

"I try," Contarini had said simply, "but I cannot do it. You wish to know why? It is because I am afraid."

"Afraid?" Broom raised an eyebrow. He had seen Contarini on the battlefield, dealing death in hand-to-hand combat, and the Italian hadn't impressed him as a coward.

"Yes," said the Venetian. "Afraid. Oh, I am not afraid of men. I fight. Some day, I may die—*will* die. This does not frighten me, death. I am not afraid of what men may do to me." He stopped and frowned. "But, of this, I have a great fear. Only a saint can handle such things, and I am no saint."

"I hope, my dear Contarini," Broom said dryly, "that you are not under the impression that *I* am a saint."

"No, perhaps not," Contarini said. "Perhaps not. But you are braver than I. I am not afraid of any man living. But you are afraid of neither the living nor the dead, nor of man nor devil—which is a great deal more than I can say for myself. Besides, there is the blood of kings in your veins. And has not a king protection that even a man of noble blood such as myself does not have? I think so.

"Oh, I have no doubt that you could do it, if you but would. And then, perhaps, when you are free, you would free me—for teaching you all I know to accomplish this. My fear holds me chained here, but you have no chains of fear."

Broom had thought that over for a moment, then grinned. "All right, my friend; I'll try it. What's your first lesson?"

The memory faded from Broom's mind. Had he really moved through some segment of Eternity to reach this . . . this place? Had he—

He felt a chill run through him. What was he doing here? How could he have taken it all so calmly. Afraid of man or devil, no—but this was neither. He had to get back. The utter alienness of this bright, shining, lifeless wonderland was too much for him.

Instinctively, he turned and ran back toward the room he had left. If he got back to the place where he had appeared in this world, perhaps—somehow—some force would return him to where he belonged.

The door was as he had left it, the porcelain dish still in place. He scooped up the dish in one big hand and ran on into the room, letting the door shut itself behind him. He ran on, through the large room with its many tables, into the brightly lighted room beyond.

He stopped. What could he do now? He tried to remember the things that the Italian had told him to do, and he could not for the life of him remember them. His memory still had gaps in it—gaps he did not know were there because he had not yet probed for them. He closed his eyes in concentration, trying to bring back a memory that would not come.

He did not hear the intruder until the man's voice echoed in the room.

Broom's eyes opened, and instantly every muscle and nerve in his hard-trained body tensed for action. There was a man standing in the doorway of the office.

He was not a particularly impressive man, in spite of the queer cut of his clothes. He was not as tall as Broom, and he looked soft and overfed. His paunch protruded roundly from the open front of the short coat, and there was a fleshiness about his face that betrayed too much good living.

And he looked even more frightened than Broom had been a few minutes before.

He was saying something in a language that Broom did not understand, and the tenseness in his voice betrayed his fear. Broom relaxed. He had nothing to fear from this little man.

"I won't hurt you," Broom said. "I had no intention of intruding on your property, but all I ask is help."

The little man was blinking and backing away, as though he were going to turn and bolt at any moment.

Broom laughed. "You have nothing to fear from me, little man. Permit me to introduce myself. I am Richard Broom, known as—" He stopped, and his eyes widened. Total memory flooded over him as he realized fully who he was and where he belonged.

And the fear hit him again in a raging flood, sweeping over his mind and blotting it out. Again, the darkness came.

This time, the blackness faded quickly. There was a face, a worried face, looking at him through an aperture in the stone wall. The surroundings were so familiar, that the bits of memory which had been scattered again during the passage through centuries of time came back more quickly and settled back into their accustomed pattern more easily.

The face was that of the Italian, Contarini. He was looking both worried and disappointed.

"You were not gone long, my lord king," he said. "But you *were* gone. Of that there can be no doubt. Why did you return?"

Richard Broom sat up on his palette of straw. The scene in the strange building already seemed dreamlike, but the fear was still there. "I couldn't remember," he said softly. "I couldn't remember who I was nor why I had gone to that . . . that place. And when I remembered, I came back."

Contarini nodded sadly. "It is as I have heard. The memory ties one too strongly to the past—to one's own time. One must return as soon as the mind had adjusted. I am sorry, my friend; I had hoped we could escape. But now it appears that we must wait until our ransoms are paid. And I much fear that mine will never be paid."

"Nor mine," said the big man dully. "My faithful Blondin found me, but he may not have returned to London. And even if he has, my brother John may be reluctant to raise the money."

"What? Would England hesitate to ransom the brave king who has fought so gallantly in the Holy Crusades? Never! You will be free, my friend."

But Richard Plantagenet just stared at the little dish that he still held in his hand, the fear still in his heart. Men would still call him "Lion-hearted," but he knew that he would never again deserve the title.

And, nearly eight centuries away in time and thousands of miles away in space, a Mr. Edward Jasperson was speaking hurriedly into the telephone that stood by the electric typewriter on his desk.

"That's right, Officer; Suite 8601, Empire State Building. I was working late, and I left the lights on in my office when I went out to get a cup of coffee. When I came back, he was here—a big, bearded man, wearing a thing that looked like a monk's robe made out of gunny sack. What? No, I locked the door when I left. What? Well, the only thing that's missing as far as I can tell is a ceramic ash tray from one of the desks; he was holding that in his hand when I saw him. What? Oh. Where did he go?" Mr. Jasperson paused in his rush of words. "Well, I must have gotten a little dizzy—I was pretty shocked, you know. To be honest, I didn't see where he went. I must have fainted.

"But I think you can pick him up if you hurry. With that getup on, he can't get very far away. All right. Thank you, Officer."

He cradled the phone, pulled a handkerchief from his pocket, and dabbed at his damp forehead. He was a very frightened little man, but he knew he'd get over it by morning.

THE END

THE ANALYTICAL LABORATORY

October, 1959 Issue.

PLACE	STORY	AUTHOR	POINTS
1.	That Sweet Little Old Lady (Conc.)	Mark Phillips	1.60
2.	Dodkin's Job	Jack Vance	2.17
3. & 4.	TIED		
	Unspecialist	Murray F. Yayco	3.07
	The Law Breakers	Christopher Anvil	3.07

THE EDITOR.

STRESS.

One major trouble with those competent to lead is that it is, for them, a darned sight easier to not lead. Why should they? Why tackle a hard job when you don't have to...?

Illustrated by van Dongen

PATTERN

BY ROBERT SILVERBERG

HE letter was on crisp, crinkly, white, and extremely costly stationery. Howard Wilson fumbled with the envelope seal, broke it, and unfolded the letter. An engraved letterhead in stark Gothic type said *Institute for Human Progress,* 130 *West* 42*nd Street, New York* 17*A, New York.*

Wilson's first reaction was one of puzzlement. After a moment he began to grin. "Of all the colossal nerve—"

His wife Sorine, en route to the cleanall with the breakfast dishes, said, "Who's it from, dear?"

"Those crackpots I lambasted in my article in last week's *Republic*—the Institute for Human Progress. They're unhappy about what I said. Listen to this:

"My dear Professor Wilson,

The issue of *The Republic* for September 7, 1982, containing your article 'Enemies of the Common Good,' has been brought to my attention. In your article you make several references to this Institute as a stumbling block in the way of mankind's improvement and greater welfare. We feel that this is somewhat of a distorted view of our position, and I should like to take this opportunity of inviting you to our headquarters for a discussion that may clarify and illuminate some of your statements.

May I hear from you at your earliest convenience?

In all sincerity,

C. F. Brewster, East Coast Director,
The Institute for Human Progress."

He looked up, chuckling. "Imagine—they'll clarify and illuminate me!"

Sorine said, "What are you going to do?"

Wilson shrugged. "I don't know. It might be fun to go up there. I might even get another article out of it. Not that *The Republic's* pay is any great shakes, but a lot of top people read that magazine—"

"What do you mean, no great shakes?" Sorine demanded laughingly. They gave you one hundred fifty dollars for that piece."

"After six drafts! A month's work!"

"No matter. We can't live on the money your grant brings in alone. You ought to go to see this fellow Brewster. Maybe you'll get enough material for a sequel to your article."

He nodded. "I'll go. It ought to be clarifying and illuminating just to listen to somebody who's so completely wrongheaded. Imagine, Sorine—this outfit wants to abolish income tax, pull the country out of the United Nations, eliminate Social Security, bust up the labor unions—and they call themselves the Institute for Human Progress! Their motto is probably *Full Steam Backward! On to the Nineteenth Century!*"

He rose from the table. It was 7:30 a.m.—time to leave for work. Not really work, of course—more of a field trip. Only neither his bosses nor his fellow workers knew that.

"Do I look rumpled enough?" he asked.

Sorine smiled. "You look seedy enough to be the real thing," she told him. "Have a good day. I'll type the Interfamilial Relationships notes today."

"Fine. You may have trouble with the Cognate stuff: I scribbled a lot of changes in last night."

"Don't worry. The day I stop being able to read your handwriting is the day you can get yourself a new research assistant. But I'll scratch her eyes out if she's under forty-five."

She leaned up for a kiss. Wilson touched her lips lightly, grateful as ever for the stroke of luck that had thrown Sorine into his Psychometrics class when he was going for his M.A. in Sociology. She was the ideal partner for him, worth her weight in fermium to him both as a wife and as his research assistant.

"Be home at quarter past five, same as always," he said.

"Right. Are you going to call that Institute for an appointment?"

He nodded. "If I get a chance during lunch break. I'll see how things work out."

It was twenty-five minutes to eight in the morning as Howard Wilson, B.A., M.A. Assistant Professor of Sociology at Columbia University, stepped out of his apartment in the middle-income housing project known as LaGuardia Town, located in the part of Manhattan once called Hell's Kitchen. He looked anything but like an Assistant Professor of Sociology at the moment. He wore a dark pea jacket, going ragged at the buttonholes, and heavy green overalls. His face was stubbly with sprouting reddish-brown beardlets: he only

shaved every other day lately, and when he did shave it was in the evening, so he would still present a stubbly appearance the following morning. He carried a lunch box just like any other worker, and in his wallet was a card certifying him as a paid-up member of the particular union local that had jurisdiction over the warehouse where he was employed.

He had been on the job for seven weeks. And he liked to think that his skill in handling the vernacular and his growing knowledge of manual-worker mores had kept his coworkers from penetrating his exterior to the college professor within. His thesis on *Sociocultural Attitudes Among Manual Workers* grew a few pages each night; he wrote for an hour, from five-thirty to six-thirty, and then after dinner he and Sorine discussed and criticized the pages he had written the previous night, which she had typed during the day.

The thesis was coming along. Nearly eighty pages of final draft sat in the portfolio. He rolled the pleasant phrase around in his mind as he buzzed southeast in the Cross-Manhattan Tube: *Howard Wilson, Ph.D. Doctor* Howard Wilson, *Professor* Wilson, with no niggling qualifying words like "Assistant" or "Associate" prefixing the title.

He had a one-year leave—without pay—from his Assistant Professorship at Columbia. One year was really not enough time to handle the job properly, but he thought he could manage the field work, at least, during that time. He had a three thousand dollar grant from the Dornfeld Foundation to help him, and the field work itself, the warehouse job, brought in an extra seventy dollars a week take-home pay. With Sorine's income as a part-time substitute teacher added in, as well as such supplementary items as the occasional freelance pieces he wrote for the liberal weeklies, the Wilson family could just about manage to cope with the cost of living. If there had been children, things might have been close to impossible.

"Brooklyn Bridge," the tube announcer sang out. *"Transfer here for tube to Brooklyn."*

Mechanically Wilson filed out of one car, across the platform and down the fluorescent-lit hallway. The Brooklyn tube sat in readiness. The time was nine minutes to eight. He boarded the car. Moments later it hurtled out of the station, passing under the river at eighty miles per hour.

At three minutes to eight Wilson emerged from the underground station. It was a brisk September morning, with a fresh wind whipping in past Governors Island from the Upper Bay. He walked springily down the long hill; the big, gray, eighty-year-old warehouse building stood at its foot, just by the water.

At eight o'clock he was filing past the time clock, fitting his thumb to the identity check in the card's upper right-hand corner and sticking the card in the clock. Racking it, he moved on into the warehouse, dropping the personality of Howard Wil-

son, M.A., and forcing himself to become Howie Wilson, Labor Category 14b (Unskilled Warehouseman.)

It had not been Wilson's idea originally to do his field work in just this sort of way. His plan had been to visit the docks and mines with a minirecorder, draw men aside, ask them questions. But Paul Chambers, a faculty friend of his, had laughed at the idea.

"The men won't tell you a thing, Howard. They'll think you're a management spy and they'll clam up. Sociological research doesn't mean anything to them. Why not get yourself a job down there among them, instead? You're big and strong; with a little cleverness you could pass yourself off as a laborer. Get in among them, listen to what they have to say —*that's* the way to learn!"

There was truth in what Chambers suggested. Some quick string-pulling went on in high academic circles; favors were exchanged, bargains were struck, and Wilson was able to obtain a temporary union card. He had started working at the warehouse at the end of July. It was the central shipping point for a chain of credit-furniture stores scattered through New York City and New Jersey. One floor of the six-story warehouse was given over to clerical workers and to the technicians who programmed the company's central computer; the upper four floors were used for storage and were presided over by withered, spidery veteran employees who knew the location of every item in their domains.

On the lowest floor were the loading and unloading wings. At one side of the warehouse came trucks from the factories, bringing goods which were unloaded and carried upstairs to be stored until needed. At the other side the company delivery trucks waited while men loaded them with the merchandise to be delivered to customers. It was a steady inflow and outflow, a systole and diastole carefully regulated by the computer the company had installed in the late Sixties. Supply was electronically geared to demand, changes of style were guessed at by inductive probability-checks, and, as a kind of sideline, once a week the pay envelopes were assembled by the computer, which spewed them forth, accurate to the last penny, after making social security, income tax, union dues, medical insurance, and planned-savings deductions. Only once had the machine been known to err, and that was legendary in the warehouse; in a bemused moment it had tried to pay a shop mechanic $1,000,000,068.32 for his week's work. Lacking the cash it thought it needed to fill the envelope, the computer had helplessly flashed its breakdown signal and a technician, rushing to the rescue, canceled out the discrepancy.

Wilson had no contact with the smug computer technicians, nor with the bleak-faced, harried clerical workers. He was not interested in them for the purposes of his inquiry, and,

besides, a yawning social gulf separated the first-floor warehousemen from the other employees. Wilson was part of a truck-loading crew; from eight to eleven every morning, with a coffee-break from half past nine to quarter of ten, he and a dozen other men lifted crated furniture from the conveyor belts and, under the direction of their team foreman, placed the crates in the loading bins.

While they worked, a more skilled workman checked the contents of each bin against his loading sheets, which the night-shift workers had made up for him. The computer divided the daily delivery load by truck-capacity and made assignments of merchandise on a geographical basis. The night men checked these lists and relayed them to the storage attendant upstairs, who found the needed merchandise and started it on its winding path down to the first floor.

Where, in the morning, sweating men jostled it into place on the loading platforms, and then, when the loading sheet had every item checked off, from the platforms into the trucks themselves, and out to the purchaser. It was, thought Wilson, an astonishingly efficient machine, providing smooth flow of cheap, gimcracky, purchased-on-time furniture to a population area of better than twenty-five million.

The conveyor-belts were already at work, bringing the crates down, when Wilson reached his work station. Most of the other men were already there.

"Yo, Howie," grunted the team foreman, stocky little Ralph Fletcher.

"Yo, Ralph," Wilson replied. He nodded at the rest. It wasn't considered necessary to greet all of the other workers individually. Just Ralph got special treatment, symbol of the extra eleven dollars and twenty-one cents in his weekly paycheck.

Fletcher was peering at the yellow sheet, second carbon of the loading instructions. The original, on white paper, went to the computer—as did all the copies, ultimately. The first carbon, on pink paper, was used by the bin-checker when he made his rounds. The third carbon, green paper, was filed for general reference in a big leather binder on a desk in the loading area.

"Let's get this junk rolling," Fletcher said. "Eight oh three already. Boss gonna be on our necks any minute."

The goods were starting to pile up. Wilson grabbed his hand truck and drifted toward the area where the conveyor belts discharged. Beds and dressers from the sixth floor, rugs and lamps from the fifth, small furniture from the fourth, unpainted goods and bookcases from the third floor. He knelt next to a rolled-up 9x12 linoleum rug. Lifting the yellow tag, he saw that a night-shift man had scrawled a big crayoned 12 on the front of it. Bin Twelve, that was. Wilson hoisted the rug to his shoulder in one easy motion and carried it to Bin Twelve.

Sam Fuseli had taught him that motion the first day he had worked here. "Whatsamatter, Howie, you

nuts? Wanna rupture yourself? Look, you pick her up *this way*—" And he demonstrated, a simple, effective, wordless lecture in muscle tensions and center-of-gravity compensation.

Letting the linoleum down in Bin Twelve, Wilson returned to the pick-up area. One Style 1449 Bed, Bin Eighteen. It was packed in two sections, headboard and frame. Wilson trucked the frame into the proper bin, and found that someone else had taken the headboard there already.

Back and forth, back and forth. There had been a time when the company had considered automating the loading platform. But the union, of course, had squawked; and, in any event, the idea turned out to be impractical. Installing a belt system that could scan the tags and deliver the goods to the proper bins would involve an immediate capital outlay of close to a million, and it seemed improbable that the expenditure would ever pay for itself. Men could do the job cheaply and efficiently, and so the automation idea had been junked.

Wilson hauled the furniture back and forth. He kept his ears open, listening for scraps of revealing conversation, goading his fellow-workers into letting him know more and more of what went on behind their foreheads.

"So what did Ella say then?"

"She said no marriage unless Momma was there. And it's a hundred, hundred-fifty bucks to fly the old dame up from Texas. That's far . . . thousands of miles, y'know!"

"Yeah, I know. So what's happening?"

A shrug. "I tell her we can't afford it. She don't give a damn. Momma gotta be there. So the hell with it, I say. Go marry Charlie if you want. I go stomping outa there and say I'm gonna get drunk. Two seconds later out comes Ella right after me, drags me back into the house. O.K. about Momma, she says—"

Wilson listened as he worked. He had estimated the I.Q.s of these men as ranging from the basement up to perhaps one hundred and ten with the bulk of them clustered in the seventy-five to ninety range. They were strong, healthy men who married young and believed in large families. By and large, they were happy men. Wilson had been surprised, at first, to discover that. From the outside, from the remoteness of the academic world, it had seemed to him that men whose sole purpose in the universe was to push crates of furniture around or dig coal out of the ground or demolish old buildings would be unhappy men, bone-tired physically, cramped by the limitations of their low salaries and large families, and oppressed by the nagging feeling that they were not living up to their fullest potentialities.

But he had been wrong. Most of these men were happy. The union protected their jobs; medical insurance plans prevented financial disaster from resulting from illness; public welfare funds helped them in time of personal stress. They had

good retirement plans to look forward to, both governmental and company. And, most important of all, they *were* living up to their fullest potentials. They were doing the jobs for which they were mentally and physically designed. Not one of them hankered to be anything else. None yearned to write novels or to win the Nobel prize in Physics or even to be a full professor of Sociology at Columbia. They were content.

Back and forth, back and forth. Honest sweat stippled Wilson's flannel shirt. After seven weeks, he had rounded back into shape. His muscles, rusty since undergraduate days, no longer ached every night.

Tote that barge, lift that bale . . .

Coffee-break time came. Wilson did a lot of listening, a little careful questioning. Every day he uncovered new riches: attitudes toward parents, toward children, toward organized religion, toward the government. Feelings about sex in and outside of marriage, personal hopes for the future, ambitions and the lack thereof. Wilson soaked it all up. His thesis, when he wrote it, would be a major document of the way the workingman thinks. Or so Wilson hoped.

The gong sounded for lunchtime. Usually the loading-bin crew played stickball at lunchtime in the wide street fronting the pier. But today, Wilson remembered, he had a phone call to make. He had to call Brewster, at the Institute for Human Progress.

The meeting would be good for laughs, he thought. And maybe he could scrape another *Republic* article out of it after all: a face-to-face interview with an arch-reactionary, or some such slant.

Wilson made the call from a pay telephone booth in a candy store three blocks from the warehouse. He dropped the token in, punched out the number, and waited.

A sleek feminine voice said, "Oh-five-three-six-one, who is calling, please?"

"Ah . . . this is Mr. Wilson. I'd like to talk to Mr. Brewster, please."

There was a pause; none of the is-he-expecting-your-call? runaround most switchboard operators delighted in handing out nowadays. A calm, deep voice said, "Hello there, Mr. Wilson. I'm so glad you could find a moment to call me. Will you be paying us a visit shortly?"

"I'd like to stop up and see you, yes. If you'll give me some idea of when you'll be free—"

"My schedule is extremely flexible," Brewster replied. "I could see you this very afternoon, if you wished."

"That's just the trouble. Afternoons are out. I'm . . . doing field work these days. Keeps me busy from eight to five, five days a week. I couldn't possibly get to your office before six, and—"

"Six would be fine, Mr. Wilson. I'm quite anxious to have a chat with you."

"If six is all right, then, suppose we make it for tomorrow night?"

"Excellent," said Brewster. "My

office is on the twenty-eighth floor. You won't have any difficulty finding it, I'm sure. See you tomorrow, then. At six."

Frowning, Wilson hung up. He was puzzled by Brewster's joviality and his eagerness to go out of his way for the sake of setting up a meeting. It was far from an expectable reaction, after the way Wilson had spoken of the Institute in his article:

(*This sinister organization, presumably financed by contributions from self-seeking tycoons, which agitates in its furtive, shadowy way for the overthrow of every major social advance of the Twentieth Century . . . this combine of feverish reactionaries, as radical in their way as the most nihilistic bomb-thrower of the last century . . . this paradoxically named enterprise which seeks to hamper human progress in the very name of human progress . . .*)

No, he had certainly not been kind to the Institute. And he felt a twinge of guilt now, because he knew he had not fully researched his article. He had based his indictment of the Institute on their newspaper advertisements and handout propaganda and public statements. Their stand had been clear enough from that, and he had had no time for personal contact with them. Well, no matter, he thought. There was no reason why they could not be urbane and charming people instead of the sinister schemers he had portrayed them as —the basic fact still was that their beliefs were dangerously illiberal and that they were a menace to the common good.

He stepped out of the phone booth and back into the character of Union Member Howie Wilson. Howie slurred his words and blunted his grammar; Howard was more precise both in enunciating and in constructing his sentences. Returning to the warehouse, he ate his lunch—a chicken-salad sandwich and an apple —and joined the stickball game.

In the afternoon, he shifted from the loading platform to the unloading wing, since all of the company trucks had been loaded before lunch and were on their way through the city on delivery rounds by now. Delivery vans pulled up outside the warehouse entrance and unloaded their contents—kitchen tables from Trenton, lamps from Baltimore, bedroom sets from Iowa. Jet planes and high-speed railroading to the contrary, heavy trucking was still the most efficient way of cheap transport.

Wilson unloaded and carried all afternoon, with time out for a break at 2:45. At five, the quitting gong sounded; the men shuffled one by one past the time clocks and out into the street. The dying September sun hung over the murky Bay waters, a swollen red globe. Men in shabby clothing straggled homeward, to their video sets and their untidy wives and their simple pleasures.

Wilson was home in twenty minutes. Sorine greeted him with a kiss and a Manhattan; the cocktail served

as a symbolic indicator of his transition back from Howie to Howard Wilson, M.A. College people drank cocktails; working men, beer. *And who ever said America was a classless society,* Wilson wondered? *The signs of stratification are all around.*

"Tired?" Sorine asked.

"Not very. I'm getting to like the work. It makes me begin to feel that there's a reason for putting muscles in the human body."

"You want a massage?"

He shook his head. "Thanks, honey, no. I don't tighten up any more. I tell you, I'm turning into a regular warehouseman. But I envy those guys. They just have to lug crates back and forth all day. I have to do that—but I have to keep *thinking,* too. Watching them, listening. Making mental notes for my thesis."

Sorine laughed. "You could always chuck the academic life and go to work there permanently, you know. I'm sure it could be arranged. Then you wouldn't even have to bother thinking. You'd just lug furniture eight hours a day."

"And go quietly out of my mind," Wilson said.

"Maybe you would. But think how happy you'd be afterward!"

He slipped behind his desk. This was the time he preferred for writing —as soon as he was home, while the day's thoughts still tumbled freshly from his mind. Better to do it that way and correct for errors later, than to drag the ideas unwillingly from his brain later at night.

Sorine said, "Did you call Brewster?"

"Uh-huh. Made a six-pee-em ap-

pointment for tomorrow night. I'll stop off here first to shave and change. Wouldn't want him to see me in my warehousing clothes."

The building was a brand-new one that had gone up after the massive midtown-Manhattan slum-clearance program of the late Seventies. It towered eighty stories without setbacks; its sides were sleek slabs of burnished bronze that glinted dully in the last rays of sunlight.

Wilson felt strange in his old academic garb, necktie and all. For seven weeks he had worn old clothes to work and informal clothes at home. But he wanted to be at his sharpest for this meeting. Sorine had laid out his best suit for him, and had patted depilator cream onto his cheeks as he dressed and hurriedly prepared to leave. He stepped from the Times Square tube station just before six. The great chimes of St. Benedict's Cathedral were still sounding as he passed through the photobeam of the door labeled INSTITUTE FOR HUMAN PROGRESS.

He found himself in a brightly-lit, expensively-furnished reception room. But the receptionist's cubicle was empty, and no one was in sight. Puzzled, Wilson settled into an inviting-looking black-leather pneumochair to wait.

A moment later an inner door opened and a man stepped through. He was in his sixties, Wilson estimated, with a dramatic thatch of blindingly white hair. He was tall—an inch or two taller than Wilson, who was a six-footer—and his skin was tanned and unwrinkled.

"You're Wilson, I suppose. I'm Charlie Brewster. Sorry to be so informal, but the staff goes home at four."

Brewster extended an enormous hand. As he took it, Wilson said, "I wish it hadn't been necessary to keep you after the regular time—"

"Quite all right, quite! I'm here till all hours anyway, so it's no trouble at all. Let's go inside, yes?"

Wilson followed the big man to an inner office. Brewster indicated a comfortable-looking chair, and sat down himself behind a broad, polished mahogany desk whose surface was bare but for a little metal statuette of some kind of prehistoric animal.

Wilson felt acutely uncomfortable. He had publicly called the Institute—and, by extension, Brewster—some rather unpleasant names. And Brewster was treating him as an honored guest.

Brewster said, "I've read your article, Wilson. I make a point of reading *The Republic* every week. I take it we're not a very popular outfit among the people who read and write for *The Republic?*"

Wilson smiled uneasily. "Naturally, your political views don't coincide with the prevailing beliefs of the *Republic* people. It's not exactly a right-wing magazine."

"I understand that. And I suppose you're not exactly a 'right-wing-

er' yourself, whatever is meant by that."

"I mean by that," said Wilson, "that I usually vote for the National Liberal Party, that I'm in favor of social legislation and America's participation in international affairs, that I'm not in favor of turning the clock back to 1875 and complete free-enterprise—"

"Whereas we," Brewster put in, "are the archdemons of conservatism who burn effigies of Franklin Delano Roosevelt and oppose all you consider true and good. Eh?"

Wilson shrugged. "Roosevelt died five years before I was born. His name doesn't trigger a set of emotional responses in my mind, if that's what you expected it to do."

Brewster leaned forward. He looked, thought Wilson, like a kindly and well-to-do uncle. "You aren't going to believe this, I'm afraid. But human progress *is* really the thing this outfit is interested in. We don't have any political affiliations. If you'll check the records, you'll see that we contributed as much to the National Liberals last year as we did to the American Conservatives—zero dollars. We don't have any special saints or special villains. And very frequently we advocate certain causes simply because we're expected by the public to take such stands."

"For example?"

"Our attacks on the United Nations. I personally feel the U.N. is doing a wonderful job, now that it has its charter revamped to make a little sense. But the Institute has a half-page ad in tomorrow's *Times* calling for withdrawal of this country from the organization."

"You've just admitted to me that some of your stands are insincere," Wilson said. "How do I know the whole aim of this so-called Institute for Human Progress isn't insincere?"

"You'd be right. We're the biggest bunch of phonies ever incorporated," Brewster said with a pleasantly affable smile. "We don't believe a word of what we say. We don't *want* to be taken seriously. We're His Majesty's Loyal Opposition—and we want to stay that way. So we yell for repeal of the Income Tax Law and withdrawal from the U.N. and the end of Social Security and a bunch of other lost causes."

Wilson blinked. To cover his confusion he wriggled a cigarette from his pack and nudged the ignitocap with uncertain fingers. "All right," he said finally, in a hollow voice. "Obviously you're trying to get me to believe that this is an organization of crackpots. And you're succeeding, too. Splendidly."

"We're not exactly crackpots," Brewster said solemnly. "Our goal is a serious one." He tapped the little statuette on his desk. "Know what this is?"

"A dinosaur of some kind, I suppose."

"Right. It's called a Trachodon. It happens to be extinct. What this Institute is trying to do is to make sure that man doesn't go the same way."

"Small chance of that, now that we have the Atomics Pact. The world's been at peace for fifteen years, and there isn't any reason why the peace can't keep indefinitely."

Brewster smiled. "War doesn't make species extinct. It toughens them up so they can last. *Peace* is the real enemy. No, I'm not warmongering. I mean a special kind of peace — the peace of a vegetable. When humanity starts turning vegetable, we're on the road to extinction."

A little angrily, Wilson stubbed out his cigarette. The other's argument was getting hazier and hazier, drifting off in every which way. Brewster refused to be concrete. He talked in maddening generalities.

Wilson said irritably, "You aren't getting your point across at all. If your publicly announced stands are insincere, just what *is* the purpose of this organization? You haven't said anything that makes sense."

"Our purpose? Suppose *you* find that out. You're a sociological investigator. Do some investigating. When you've got what you think is the answer, suppose you come back to see me again. There's a job waiting for you here, Wilson."

"A job? For me? Here?"

"Of course. Why do you think I invited you here tonight? You've just been having your job interview. You've practically put the pattern together. Once all the pieces are in place, you'll be hired. We need your kind here, Wilson. Come back when you're ready."

Brewster rose in a gesture of dismissal. Wilson shook his head uneasily, thinking that this interview had turned into some kind of Alice-in-Wonderland fantasy where nothing anyone said quite made any sense, and comprehension just eluded one's grasp. What was Brewster talking about, anyway? He wasn't looking for a job here!

As they walked to the door Brewster said, "By the way, Wilson—how are you enjoying your tour of duty down by the waterfront?"

"What? How did you know —"

Brewster chuckled. "We keep an eye on all our promising young men, Wilson. Good night, now. My best wishes to your wife."

A sorely confused Howard Wilson pressed his thumb to the identiplate and opened the front door of his apartment. He smelled the fragrance of supper; Sorine came skipping out from the kitchen to meet him, a lithe, smiling figure decked out in a wholly superfluous but quaint little apron. It was fifteen minutes past seven that evening.

"Well? How did everything go? What sort of fellow was he?"

Wilson let his shoulders move in a sluggish shrug. "Just what I expected him to be. A crackpot."

"What did he say?"

"Nothing that made any sense."

"Will you be able to write an article about it, Howard?"

He shook his head morosely. "I don't think so. It was all garbled—a lot of nonsense about how their programs aren't really sincere, and

that they were afraid mankind was going to become extinct, and stuff that makes even less sense. I've got a headache. Is supper ready?"

"Just about. I punched the Autocook five minutes before you walked in. Roast turkey tonight—is that O.K.?"

"Anything," he said wearily.

"Are you feeling all right?"

"I said I had a headache!"

"All right! You don't need to shout!"

He smiled apologetically at her. It was rare that he ever raised his voice in the home. But he couldn't help it; the conversation with Brewster had rubbed his nerves raw. "I'm sorry, darling. It's been a long day, I guess."

"Come on—let's eat. And you can tell me all about the Institute for Human Progress."

But there was little he could tell her; he was usually good at repeating conversations, but the paradoxical twists and turns of Brewster's statements had left him hopelessly bewildered. And there were parts that he deliberately kept to himself —the part about this being a job interview, for instance. Telling her about it would only becloud things even more. He wished he had thrown Brewster's letter away unanswered, as he had briefly planned to do originally. As it was he had lost a day's work on his thesis, and all he had to show for the investment of time was a splitting headache.

During the next few days Wilson had an inexplicable feeling that something disastrous was about to happen. The presentiment was so vague that he kept it from Sorine; but as he went through his daily routine of work at the warehouse and scribbled his nightly few pages of notes, he felt tension wrap tighter and tighter around him.

And in the middle of the week following his interview with Brewster, trouble arrived. It showed up in the form of a long white envelope bearing a Washington, D.C. postmark and the return address of the Dornfeld Foundation.

He opened it with tense fingers. The monthly two hundred fifty dollar check from the Foundation was not due for nearly another ten days. Maybe they wanted him to file a special report, or something. Maybe—

"What is it?" Sorine asked. "You look so pale all of a sudden!"

He managed a limp smile. "It isn't . . . very . . . good . . . news—"

Wordlessly he put the letter on the table. She snatched it up, read through it, gasped incredulously. "They're cutting off your grant? Why, they can't do a thing like that!"

"Evidently they can," said Wilson in a flat voice. "It says so right there. *'Administrative reorganization makes it impossible to continue current grants for sociological research beyond October, 1982. We are deeply sorry that it becomes necessary to interrupt your research at this point—'* Et cetera ad nauseam."

"But the Foundation people were so nice to you," Sorine protested.

"How can they cut off your grant like this?"

"Maybe they have a new Director who doesn't believe in supporting sociology. Maybe they've decided to put all their cash behind some guy who's building a better neutrino-detector. My little three-thousand-dollar grant isn't the only one. They're probably cutting off half a million dollars or more, and rechanneling it into physics or chemistry or some other *real* science."

"You'll go back to Columbia now, I guess. Well, maybe you can do the thesis next year—"

He shook his head violently. "I'm *not* going back! For one thing, they might not want to cancel my leave in mid-semester. For another, the Dornfeld grant was only two hundred fifty dollars a month. I can write articles for *The Republic* and other magazines like that on week ends; a couple of sales a month and it'll more than make up for the loss of the grant. Sure, losing the grant's a tough break. But I'm not going to let it discourage me, Sorine."

He wrote an article that week-end: "The Shortsighted Policy of Science Foundations." He tried to make it as objective an indictment as possible, not mentioning his own unhappy experience directly as he complained of the way the big foundations were neglecting the humanic sciences in their eagerness to support physical science. He polished and repolished the article for a week. When Sorine handed him the neatly typed final draft he read it through with mounting satisfaction. It was one of the best things he had ever done, he thought. He mailed it to *The Republic.*

It came back three days later with a printed slip that began, "The editor regrets that the enclosed material is unsuitable for publication . . ."

"This hurts more than anything," Wilson muttered. "I've known Larry Martinson for years. I've had ten articles printed in his magazine. I'm a regular contributor! And *now,* to get a *printed* rejection slip—!"

"Maybe it was a clerical error," Sorine suggested. "Larry wouldn't just send the article back like that. Most likely it got into the wrong stack and was sent back by mistake. Why don't you call Larry up and ask him about it?"

"No," he snapped. "A rejection is a rejection. It couldn't have been a mistake. And I refuse to go whining to Martinson to ask him *why.*"

He tossed the manuscript down on his desk and tried to forget he had ever written it. His head was pounding; he seemed to have a headache all the time now. It was seriously affecting his warehouse work, causing him to make stupid mistakes of the worst sort. The day before, he had laboriously dragged a bedroom set that someone had rightly placed in Bin Thirteen all the way down the platform to Bin Thirty-one. No sooner had he finished the job than Ralph Fletcher came over, arms folded.

"What you think you're doin', Howie?"

"Puttin' this bedroom where she belongs."

"You are, huh? What bin you think this is?"

"Thirty-one," Wilson said in surprise.

"Yeah. That's right. Now suppose you lug all this stuff back down to Thirteen, where it oughta be. You goof, I thought you could read!"

Shamefacedly Wilson examined the tags again. Somehow he had transposed the numerals *one* and *three.* He thought in embarrassment, *Benefits of a college education. I can't even read straight any more.*

That night he wrote only three pages, instead of his usual five or six. The next night, he could manage no more than two pages. The night after that, production stopped entirely. "I need to rethink some of my ideas," he told Sorine. "I won't do any actual writing for the next day or so."

But the rethinking stretched on into three days, a week, two weeks. He came home exhausted from the warehouse, sipped his drink, read or watched video. He said little and wrote nothing at all. Sorine tactfully kept silent on the subject. Wilson referred to it as a "temporary work blockage" for a while, then stopped referring to it at all.

He knew what the trouble was. It was a twofold problem: he had lost his foundation grant, the bedrock of his economic security and self-confidence—and, worse, he had lost the thread of his own argument. The sociocultural attitudes of the laboring class were not fitting into his preconceived pattern. He had expected bitter, discontented men; he had found them happy, round pegs in round holes, with minimal insecurity. The stress pattern he had built his plan around simply was not there.

His headaches grew worse. He wrote another article for *The Republic* and got it back with another printed form. He stared guiltily at the no longer expanding pile of manuscript in his thesis portfolio. He started having two cocktails before dinner instead of one. He bickered endlessly with Sorine, hating himself for it.

There's a stress pattern all right, he thought. *But it's not in the lives of the warehousemen. It's in my life. It's tightening around my neck like a noose.*

The blowup came a few weeks later, at a cocktail party held at the Riverside Drive apartment of Paul Chambers, Wilson's closest associate on the Columbia faculty. It was late November now; the fallen leaves lay in windswept heaps, the days were short, the temperature in the forties and fifties. There had been one brief snowfall already. Winter was coming on. *The winter of my discontent,* Wilson thought, looking forward bleakly to the dark months ahead.

He had wanted to go to the party dressed in his warehouse clothes, but Sorine wouldn't hear of it.

"It'll be a good gag," he insisted. "Anyway, it was Paul's idea that I get the job, in the first place."

"That has nothing to do with it," she told him firmly. Her patience was showing signs of thinning, lately. "There are going to be important people there. Faculty people. You can't show up looking like a tramp."

"But I *won't* be looking like a tramp! Manual laborers are the backbone of our society! Just because they dress the way their job demands—"

"*Howard,*" she said in quietly menacing tones.

He caught the implications. "All right," he murmured resignedly. "I'll wear my good suit."

He poured himself a hefty shot of bourbon before they set out. "One for the road," he explained to Sorine. "It's cold outside." What he did not need to tell her was that the drink softened some of the newly sharpened edges of his personality. It damped out his inward brooding. It wrapped a warm fog of unthinkingness around his mind.

They walked over to Chambers'

place. It was twelve blocks away, and in plusher times they might have taken a taxi. The night was cold and dark. Wilson was doubly glad he had indulged in the drink.

The party was going full blast when they arrived. Chambers himself came to the door, a lanky, lean man with a graying crewcut and the cheerful face of an undergraduate. Actually he was forty-five, and held a full professorship in the department. He grinned broadly as he saw the Wilsons.

"Howard! Glad you made it! Come right in! Hello, Sorine. As lovely as ever."

He gave Sorine a warm hug, more paternal than anything else, and practically dragged her into the large, attractively furnished apartment. Wilson followed. In his first glance he saw twenty or thirty people with drinks in one hand, cigarettes in the other, polished, well-bred looks on their cleanly shaven faces. It was the first considerable social gathering he had been to since starting work at the warehouse, and for an instant he looked at the guests in a curiously objective way, as if he had never seen a group of college people before.

"Coats in there, drinks are in the music room," Chambers said, bustling past. "Plenty of people I'd like you both to meet."

They dumped their coats and followed Chambers to the bar. Wilson helped himself from a pitcher of chilled Martinis; Sorine settled for straight vermouth. He sipped his drink, looking around. He recognized half a dozen people from the Sociology Department, including Professor Griggs, the chairman. And there were a few other familiar faces from campus, and some unfamiliar ones as well. Paul always gathered an interesting group, he thought. Chambers was in the middle of the social swim, at least so far as people of intelligence went.

Wilson remembered that it was Chambers who had been instrumental in introducing him to Sorine—eight years ago, when they had been graduate students and Chambers an Associate Professor teaching Psychometrics 311. Wilson had fallen into an argument with the girl seated to his left over some point in Chambers lecture; after class they had gone to the dais to get Chambers' own opinion, but he had begged off answering, saying instead, "Why don't the two of you go out for a cup of coffee and hassle it out with each other?"

So Wilson had said, "Maybe we will. Are you free now, Miss . . . Miss—"

"Jensen. And yes, I'm free this hour."

So they had gone to the Den for coffee, and within a year they were married. And Chambers' innocent suggestion had been the start of it.

Wilson drifted around the room, talking first to the people he already knew, and then, as the second Martini began to loosen his inhibitions, impulsively introducing himself to strangers. His first chore was to greet Professor and Mrs. Griggs; the head

of the department greeted him with a distant smile, asked how his thesis was coming, expressed a hope he'd be back at his teaching chores before long, and glided back to his own conversation. Wilson smiled his hellos at the other Sociology people in the room. Sorine was already deep in conversation with the wife of a Statistics instructor; the two women had been undergrads together at Sarah Lawrence, or some other such place.

Going to the pitcher for his third Martini, Wilson encountered a crisp-looking, prematurely balding young man who had the same idea. They laughed; then Wilson poured drinks for both of them.

"Howard Wilson. Columbia Sociology Department."

"I'm Don Keats. Sort of an electronics engineer, they tell me."

Keats, it seemed, had had a little too much to drink, and he was looking for a listener. He worked in the research department of a large transistor firm, and he was bored. "I guess I shouldn't complain. Five-figure salary, a month's vacation if I want it, short hours, no supervision. But I'm going out of my head, Wilson."

"How come?"

"No challenge, know what I mean? I do my work, I don't do my work, I still get paid. And paid good. No one cares if our department produces or not. We don't produce, we just get taken as a tax deduction. Long-term contract protects us, y'see. Don't matter what we do. So we're faking it, doing one honest day's work a week. Makes a guy feel guilty. But it's the same all over. Everything's so nice and easy, so cushy, so secure. No incentive to struggle. Get what I mean, Wilson? 'Scuse me. Need a refill."

They filled up again. Wilson said, "You mean, you were happier when you were out looking for a job? Now you've got your slot and you're restless. But you've got no place to go. Funny. You're gettin' drunk because your life's too secure and I'm drinkin' because mine isn't. Human beings don't make any sense at all sometimes."

"You're right, pal. They don't. I'll drink to that!"

They drifted away from each other. Wilson wandered into an involved discussion of quantum mechanics going on in the corner near the bookshelf. He stood by, listening to them wrangle over magnetic moments and energy jumps, and after a while silently detached himself from that group without being missed.

He knew it was time to stop drinking. His face felt flushed, and the skin of his nose and ears had that telltale *thick* feeling. But some self-destructive urge kept him going back to the pitcher for refills.

Funny, he thought. *Everybody's a round peg in a round hole now. Everyone has tenure, pension plans, social security, every other kind of security. The warehouse men are happy about it. That engineer wasn't. He missed the challenge of uncertainty. And where do I fit in?*

The trail of thought blurred into

meaninglessness. Paul Chambers stood next to him suddenly, whispering, "Maybe you'd better lay off for a while, Howard. You look pretty wobbly on your pins."

"I'm as sober as you are!"

"I didn't say you weren't. But maybe if you spaced the drinks a little wider—"

"Says you," Wilson muttered. "Says all you righteous so-and-sos!" Like a planet passing before an astronomer's gaze, Department Chairman Griggs came into sight. Wilson pointed a wavering finger at the professor. "And you worst of all! You fat nobody who sits handing out promotions like a two-bit tin god! You antiquated idiot . . . you sputtering dinosaur—"

A moment later Chambers was hustling him off into the bathroom and dumping cold water in his face. The rational fragment of Wilson's mind struggled to reassert itself. He knew dimly that everything was finished now, that he had fouled up gloriously. If he stayed conscious, he would have to face the enormity of his guilt. He chose the easy way, and passed out.

The headache was infinitely worse the next day, a maddening steady throb. Wilson did not even consider reporting for work. He stayed in the apartment, abashed by his own lapse in self-control, sulking and trying to call back time to undo the damage of the night before.

At half past one, Paul Chambers came over. Wilson told Sorine not to admit him; but her angry look changed his mind, and he reluctantly came out to say hello. Chambers looked as troubled as if *he* had been the one who insulted Professor Griggs.

"Hello, Paul. Come to help me mourn?"

"You really jammed your foot in your mouth last night, didn't you?" Chambers said with a sad smile. "If you'd only stopped after three drinks —"

"*If.* Well, I didn't. What did Griggs say after I passed out?"

"He was angry at first, of course. But after you left he calmed down a little—he was just irritated by the time he left."

"And I suppose he never wants me to darken his door again, eh?"

Chambers turned his palms outward. "Even an assistant professor's got tenure, Howard. He can't fire you without an O.K. from the Board of Trustees, and he won't go to that extent. Griggs isn't vindictive."

"Maybe not. But he'll let me rot with my assistant professorship now until my tenure's up. I have to get a promotion in the next three years or I can be let go—and you know as well as I do that Griggs isn't going to hand me any promotions *now,* Paul." Wilson stared darkly at his feet. He had no one to blame but himself for all this, he knew. Self-pity was useless. He felt self-contempt.

"Howard—"

"What?"

"Why didn't you tell me you'd lost your grant?"

"I wasn't looking for a shoulder to weep on. How did you find out?"

"Never mind that. You've been getting some articles turned down, too. You've been under great stress these past few weeks. And so last night you exploded. I can understand that; it's a pity Griggs can't or won't. But now you're in a tight spot. I just wanted to tell you that if I can give you any help whatever—"

"Thanks, Paul. But the answer is no."

"This is no time for stubbornness—"

"Yes, it is. I've lost my research grant, my thesis is going sour in my face, my articles are coming back from *The Republic,* and now I've noodleheaded myself out of my job. I've been depending on other people for favors—grants, letters of introduction, sympathetic reading of my stuff. Now I'm forced back on my own resources. This is the time when I find out whether I really have anything on the ball or not."

"I don't follow you," Chambers said.

"I'm going to burn my bridges. Give up the warehouse business, scrap the thesis—it doesn't make sense any more anyway—and chuck the University. I might as well quit before Griggs finds some excuse to fire me. I'm going to hole up here with a stack of typing paper and write a book."

"A book?"

Wilson nodded. "I'm going to put down on paper what I think about the world—how it works and why, where it's heading. By writing it down I'll begin to understand things for the first time—I hope. I don't care whether it gets published or not. I even hope it doesn't. But I'm going to write it. And I'm going to do it without help, without collaborators, without suggestions."

"How does Sorine feel about this?"

"She doesn't know, yet. It's a decision I just made, right now, while I've been talking to you. But I'm sure Sorine won't object."

"I'm sure, too," Chambers said. "She's a fine girl."

"And I have you to thank for her. I owe you thanks for a lot of things, Paul—including coming here today. You gave me the strength to go ahead and do what I've wanted to do. After today I won't need to borrow strength from *anybody.*"

The book had no title, no outline, no plan of chapters. It was being written, not to express ideas already formulated, but to help him grope toward some sort of formulation.

He gave up the warehouse job simply by not going there. After a week, someone from the bookkeeping department called up to find out what had happened to him, and Sorine said he had found a better job. That was that; his pay for the last half-week he had worked arrived in the morning mail.

They had a little in the bank, and Sorine's afternoon teaching job brought in a little more. It was enough to get by on, with economies. Working at home, he would save a couple of dollars a week on carfare.

Simpler dinners, a moratorium on book-buying and play-going, a dime saved here, half a dollar there. They managed.

Wilson began work each day after breakfast and typed steadily through to late afternoon, with a break for lunch. The early chapters were rambling and discursive, a kind of running interior dialogue. As his ideas clarified, he scrapped the early pages and replaced them.

And he saw what his theme was: *Who am I? What am I here for? Where are we all heading?*

He had no easy answers. But he had plenty of problems to raise.

There was the matter of personal security. His fellow leaders at the warehouse had been secure in their jobs, secure in their relationship to the universe. Sam Fuseli, I.Q. approximately 75, knew that he was serving himself and the universe best by doing the job he was doing, even if he couldn't frame the idea in words. And society, with its pension plans and unions and medical insurance saw to it that Sam Fuseli was not plagued by the doubts and fears that had tormented the Fuselis of other centuries.

And then there was Don Keats, I.Q. approximately 165, secure and snug in his research job at the transistor outfit—and rapidly bringing his mind to a state of permanent numbness with a steady diet of gin and vermouth. Keats was secure, but was Keats happy? He lacked challenge. He was too well taken care of for his own good. And though he recognized this as his problem, he could not or would not do anything to alter the situation. So he drank.

And, too, there was Howard Wilson, no slouch in the I.Q. department himself. A concatenation of mishaps had contrived to rob him of his cushion of security, and so for the first time he was *thinking*, evaluating himself and the world, instead of simply going through routine academic chores. And he was happy in his new insecurity, he realized with a shock of surprise. Far happier than he had been while moving with the tide, preparing his thesis and drifting along toward virtually automatic promotion and long years of pleasant somnolence in his professorship.

He wrote for three weeks, while the stack of manuscript grew steadily. Sorine did not disturb him. She saw something stirring to life in him like a pupa within a cocoon, and she did not intend to interfere until the development was complete. He made no attempt to show her his incomplete manuscript or to seek out her advice. He valued her ideas, but this was one problem he had to work out entirely by himself.

At the end of the third week he paused and read through what he had written. Words, phrases from a mostly-forgotten conversation sprang vividly to life in his mind. The pieces of a huge puzzle were dropping solidly into place, one after another. The pupal stage was ending. Something new was thrashing into life.

He put the manuscript away; it no longer mattered to him now. It had

helped him to see the problem, and it had served his purpose. He looked up a telephone number he had never expected to call again.

"Oh-five-three-six-one," the operator's smooth voice said. "Who is calling, please?"

"Howard Wilson. I want to talk to Mr. Brewster."

A moment passed. Then Brewster's calmly assured voice boomed in Wilson's ear. "Hello, there, Wilson! I've been waiting for your call all week."

"I'd like to see you. Right away."

"You're welcome here at any time," Brewster said.

The brightly-lit office had not changed, nor had Brewster. Even the desk was the same, with its little dinosaur statuette perched at the corner. Only Wilson had changed.

He lit his cigarette with steady hands and said, "The last time I was here, you were talking double-talk—in the true sense of the word. You *said* one thing, but you meant another. It took me all this time to figure out what was going on, and I had to get kicked in the teeth a couple of times first."

"Just what do you think *is* going on, then?" Brewster asked with an amused twinkle in his eyes.

"I think that the Institute for Human Progress is a darned sight more active than it looks on the outside," Wilson said. "I think you've got a sort of front organization that takes blustering ads denouncing social security and the U.N. and income tax —while the *real* business of this organization goes on in the back room."

"And that real business is?"

"Holding our culture together," Wilson said flatly. "You take ridiculous reactionary stands because you don't want to be taken seriously; who in this day and age would seriously want the income tax law to be repealed? Or social security? So no one takes the Institute seriously — and you're left free to do your work. Whatever that work is. I'm not clear on that part, yet. But I know that in some way you and your outfit is busily operating to counteract the great leveling that's going on in our culture."

Brewster nodded slowly. "*The great leveling.* Yes, that's an accurate phrase. You finally have your eyes open, then."

"I've been looking around. I see how easy things are for people today. We have machines to do the really tough work, and we have laws that make certain no one suffers. No one starves to death any more. No one dies of polio or tuberculosis or diphtheria. No one wears himself out in a sweatshop. We're getting along toward Utopia."

"And you say this is *bad*?" Brewster asked quizzically. "You, the liberal? The contributor to *The Republic*? The man who votes National Liberal every year?"

Wilson shook his head. "I'm not saying it's bad or good. Naturally I don't want to see people starve or suffer or die of disease. Here's where I bog down. I see that all the social progress of this century is good—and

yet, in the long run, it *isn't* good."

"The conflict between present benefit and long-range effects," Brewster said quietly. "That's what you can't resolve."

"That's it! We've done away with biological selection," Wilson half-shouted. "Everyone grows up, practically everyone has children and lives to a ripe old age content and fulfilled. Cleverness is canceled out. By eliminating the responsibility of each individual to look after himself, and by leveling the chances of every man, it tends to rule out real competition of talents—"

"And puts a brake on the biological evolution of man," Brewster added. He tapped the dinosaur statuette on his desk. "That's what I meant by putting him here. Dinosaurs didn't adapt, after a while. They coasted on their size and strength. And so they aren't here any more. Perhaps man won't be either, in a few million years."

Wilson laughed. "A few million years! But how can you get anyone to worry about what'll happen then? You can't. The concern over present benefit always outweighs worry over future dangers."

"I know," Brewster said. "That's why I founded this organization twenty years ago. *Not* to secure re-

peal of the income tax law. *Not* to turn the clock back. That's just the superficial aspect of it. What I'm trying to do, and all my colleagues with me, is to guard against this inevitable down grading of mankind."

"Inevitable?"

Brewster shrugged. "It may not *have* to be inevitable. I hope not. That all depends on whether this institute is actually able to buck the trend. And I think we'll do it, Wilson.

"We're heading toward the age of the lowest common denominator. There's no longer any premium on having brains, you see. As a matter of fact, there's a positive advantage nowadays in *not* having brains, as you and a lot of others have found out. The man who's content with his lot, who fits into the right slot and stays there, gets along splendidly. He's happy. But what about the talented misfit who wants to strike out in new directions, and is afraid to break loose? He suffers. And he knows there won't be any pretty pension plans protecting him if he *does* start thinking independently, so he tries to disconnect his brain and slide along with everybody else. Only he can't. He knows he's wasting himself, and it hurts."

"All right," Wilson agreed. "So the human race is going to Hell in a handbasket. Do you really think this Institute of yours is going to set things right? That you can counteract a gigantic cultural trend like this?"

"I believe we can," Brewster said quietly.

"How? Don't tell me that your newspaper ads yelling about income tax and the social security laws are ever going to accomplish anything!"

Brewster smiled. "Those ads establish our existence. We're kept in the public eye—a cinder in the public eye, you might say. Or a Socratic kind of gadfly, making people uncomfortable. We made *you* uncomfortable enough to denounce us in print—which gave me a chance to invite you up for our first talk." He paused, drew in a deep whiff of smoke. "This Institute is engaged in the biggest engineering project in the history of the world, Wilson. An entire species—maybe the universe's potentially greatest species—is wilfully sliding down a greased runway into a mud puddle. Our job is to stick a baling-hook into that species' belt and haul it back up onto dry land."

Wilson chuckled. "Pretty tall order, I'd say. You're going to need one dickens of a winch."

"I know," Brewster said soberly. "And we're busy forging that winch right now."

"What do you mean?"

"Your field research showed you what the trend of contemporary culture is. The moron is favored; the moron is going to thrive. We're busy trying to arrest that trend—and like any dynamic minority trying to control a huge and passive majority, we have to sweat to do it. Part of our operation is to bring together worthwhile people to preserve and enhance the spark of intelligence and ingenu-

ity that sets mankind off from every other living thing. By selecting people whose traits should survive, we arrest the progressive deterioration of mankind—and supply ourselves with new recruits in the next generation. So Institute people marry, and bring forth children.

"We get our recruits in other ways, too. Our newspaper ads bring some of them in. Intelligent people get hot under the collar about what they think is our utter wrongheadedness, and they come in to argue—and go away converted. Then, too, we have scouts in the colleges who look for promising people and guide them in our direction. And there are Institute members all over the place. Right now we have sixteen men in Congress, four in the Senate—but the number increases each election. Institute men are working their way into high positions in the world's parliaments, its newspapers, its schools, its laboratories. Every place where influence can be exerted, we have a man on his way to the top. Give us time and we'll have the control we need —the winch we're trying to build."

"And who pays for this operation?" Wilson asked.

"The members of the Institute do. It's a feedback process in the simplest sense of the word. We're a nonprofit organization, taxed as such. And many of our people, if they were utilizing their own income, would be paying tax in the highest brackets. They have brains, and they use them well—so they make money. But in our society the government would take almost all of it away in taxes. The Institute is so chartered as to help get around this kind of tax setup, that penalizes a man for having brains and shrewdness. By turning their surplus income over to us, instead of to the government, that tax loss is averted and we have our funds. We use them, as I've said, in a variety of ways. We operate extremely informally, you see."

"So I notice."

Brewster's eyes narrowed. "One function of the Institute that you're probably not aware of yet is our matrimonial service."

"Huh?"

"We see to it that likely couples 'happen' to meet and get married. It's a way of getting maximum long-range benefit out of a good set of genes. That's why I had Paul Chambers bring you and Sorine together, for example."

It was like an unexpected blow in the solar plexus. "You . . . *arranged* that? Chambers—"

"Naturally. Chambers advised you to take his course, didn't he? He also advised Sorine to register for it. He saw to it that you sat near her in the classroom. And quite casually he arranged a meeting between the two of you. That was all he needed to do."

"So Chambers is an Institute man, then?"

"He's a consulting member—not officially connected with us, but working with us all the same. So is David Harrell, the administrator of the Dornfeld Foundation. When I rec-

ommended you, you received a Dornfeld grant. When I decided to stop the grant, I told Harrell to cancel it, and he did. You happened to need an independence-stimulus; a kick in the teeth, as you put it. Well, you got it! One of the subeditors on *The Republic* is with us, too. He received instructions to intercept your manuscripts and send them back unread, with rejection slips."

"And I suppose someone also conveniently arranged for me to get drunk at that party and insult the head of my department," Wilson said curtly.

"No," Brewster told him. "You did that part all by your own. We simply set the process in motion and you followed through yourself."

"And here you sit," Wilson said. "Like some sinister spider with a net reaching all around the world. Manipulating, p r o b i n g, pushing, changing—"

"Exactly," Brewster agreed. "I'm a scheming, conniving, calculating so-and-so. I manipulated you, Wilson."

"O.K., you needled me out of my rut. But—where am I now?"

"You ought to be able to answer that question yourself."

"Oh?"

"Of course. You're cut loose from the pleasant, sleepy academic existence you had been trapped in. You're independent now. Are you sorry about it?"

"Why . . . no," Wilson said. "I was stagnating. And I was trying to fool myself into thinking I was happy, that I was fulfilling myself, by bucking for my little promotions and smiling at department heads. And now I'm on my own. No tenure, no foundation grants, nothing at all. Nothing but the Institute, that is."

"Right. You've passed the test for the Institute. You were thrown into a stress pattern, and you bent—but you didn't break. Which means you're the kind of man we want. And Sorine's the sort of woman."

"How do you know? Have you tested *her,* too?"

"Indirectly, through you. She put up with you, didn't she? Let's face it: you've been pretty unbearable lately. But Sorine had an idea of the kind of crisis you were going through. She stuck with you. She'll do."

Wilson was very quiet for a moment. He was still trying to square the conflict in his mind. It was good, he thought, that society take care of people, and free them from insecurity and fear—but, viewed from the long-range standpoint of man's biological evolution, the coddling of second-raters was a bad thing. Good . . . bad. Did the words have any real meaning? Only in context, it seemed.

He wrestled with the idea. An organism, he thought, only moves forward through conflict and resolution. Warm cozy security simply makes it stay put. Thesis, antithesis, synthesis —that was the key to any sort of progress. And all the values Wilson had automatically embraced as a "liberal" now seemed to him to be false —to be driving mankind toward a morass of enforced mediocrity instead

of toward the stars. It was a numbing realization.

"Don't try to work it all out at once," Brewster said gently. "The truth is hard to swallow in one big chunk. But you'll manage. You're getting there."

"All right," Wilson said quietly. "I see the picture. In the last eighty years we've moved so far in the direction of individual welfare that we've practically trampled out the need for dynamic intelligence. So the Institute is trying to halt this process before it becomes irreversible. You're selecting young people all over the world, training them to become leaders, working them into key positions, setting up a network of . . . well, philosopher-kings. Am I right?"

"That's the essence of our program," Brewster agreed.

"Well, what about me? What job does the Institute have for me? Am I going to run for Congress?"

Brewster laughed. "Hardly. When you're so superbly qualified in one valuable position, why shift you to another? Your job is going to be as a professor of sociology."

Wilson's mouth sagged open in astonishment. "What? After all the trouble you went through to make me *lose* my job?"

"You were going about it in the wrong way—and at the wrong place. You were trying to make your thesis fit your preconceived notions of how our society works. O.K., now: tear up what you wrote, start all over, put down the facts as you see them. That the working-men are ***not*** unhappy; that, on the contrary, they've never had it so good. Write your thesis and get your doctorate."

"But after that fight with Griggs —"

"Griggs can't and won't blacklist you all over the country. You can get a professorship at plenty of other first-rate colleges elsewhere. You wouldn't be helping us if you stayed at Columbia, anyway—we already have Chambers there, and he's doing a grand job. We'll send you to some other school—though you'll have to work hard to overcome your lack of a good recommendation from Griggs. But once you're established, you'll be invaluable to us. Not as just another academic hack, marking time and waiting to be pensioned off, but as a *teacher*. As a man who can shape the minds of the young. We need congressmen, sure; but we also need influential educators with us. You'll be one of our key men. And beside the indirect influence your teaching will have, you'll also be doing scouting, matchmaking, advising, the way Chambers does at Columbia. How does that sound?"

Wilson nodded. "It sounds fine."

"But remember that you'll be working for *us*, not for whatever university you tie onto. If we catch you slacking, playing it safe, dodging the curves, we'll get you thrown out. We're not interested in people who drift with the tide. If you want to gamble on man's future, we need you. But we don't want to foster any kind of 'security' here. If you want security,

go some place else. The Institute is for people who are willing to swim *upstream.*"

"I'm with you," Wilson said in a steady voice.

"All right, then. You know what to do. Finish that thesis, get your doctorate, get a teaching post. You'll be shaping the raw material for us, and we'll take what you hand us and fit it into our grand design. Maybe some day a pupil of yours will be President —or Secretary-General of the United Nations—or the head of a big research lab. The Institute needs every thinking human being as a member, if we're going to succeed."

Wilson smiled and said, "I'll do my best."

"Oh . . . one more thing."

"Yes?"

"Have children. You've waited long enough. Let's say three children . . . two to replace you and Sorine, and a third, because we have to keep on increasing our numbers. If the worthwhile minds don't reproduce themselves, we don't have a hope of winning."

"Again," Wilson said, "I'll do my best." He grinned. "Funny . . . I once called you a furtive, shadowy agitator—in print. And now I'm tarred with the same brush. Wait till my friends find out who I've gone to work for!"

"They won't find out . . . not for a long while. Right now it wouldn't do for you or for Chambers or other educators to have any on-the-record affiliation with reactionary scoundrels like us. But the day will come when we can come out into the open—and then you'll be proud to say you're an Institute man."

Wilson nodded. "By the way, I think I have one likely prospect for you already. A man who isn't living up to his intelligence potential and who isn't happy about the situation. He's an engineer named Don Keats—"

"Just a minute," Brewster said. He wheeled round and thumbed a circular card file. "Keats, Keats . . . yes, he's here. A brilliant theoretical physicist, stuck in a high-paying engineering job that any competent journeyman could be doing. A dreadful waste of first-class intelligence. He's been under surveillance by Chambers. But I'm afraid we're going to have to give up on Keats; he's scared of losing the security of that plush laboratory job of his."

"No," Wilson said. "Let me talk to him a bit. Maybe I can shake him loose. Maybe—"

He stopped, grinning abashedly. "I'm talking like an Institute man already, I see."

Brewster nodded. "You've been an Institute man all your life, Wilson, only you didn't know it till today. But now your work is really just beginning. You've got plenty of hard hauling ahead of you—we all do—before mankind is on the right track. It's going to be a tough grind. But would you want it any other way than that?"

THE END

BRASS TACKS

Dear Mr. Campbell:

Last week end I received an automobile-ful of old Astoundings dating from 1930 through 1950—sold to me by a friend. Having happily since then spent virtually all my waking hours, and some hours when I should have been sleeping, re-reading oft-perused old standbys and browsing through stories which were new to me, I've set up a Long Range Rating System in order to determine which stories I thought were best in what category. First, I must say that I've bought and enjoyed your magazine since 1951, and that my tastes run to the following three themes: (1) the grandiose, gargantuan cosmic epic; (2) the slapsticky satire on governmental, human, and psychological foibles; and (3) the up-beat tales of Man undefeated and defeating, all of which have long been amply represented in Astounding. With this caution, I shall unveil my Long Range Rating System of ASF through the years.

ASF's best serious serial: "Renaissance," Raymond F. Jones

ASF's best humorous serial: "Divide and Rule," L. Sprague de Camp

ASF's best serious personal short story: "Thunder and Roses," Theodore Sturgeon

ASF's best serious cosmic short story: "Forgetfulness," Don A. Stuart

ASF's best humorous short story: "Top Secret," Eric Frank Russell

ASF's best serious novelette: "Universe," Robert A. Heinlein

ASF's best humorous novelette: "—And Then There Were None," Eric Frank Russell

ASF's best long-range series: Heinlein's Future History

ASF's best short-range series: de Camp's Viagens Interplanetaries stories

ASF's best steadily contributing writer: Heinlein-MacDonald

ASF's best one-shot writer: T. L. Sherred, "E for Effort"

ASF's best art work: Orban for Heinlein's "Commonsense," Rogers for Walter M. Miller's "The Soul-Empty Ones," Cartier for Irving E. Cox' "Hell's Pavement," and Van Dongen for "Dorsai."

Of course, these categories could be broken down even further, to include old favorites of mine such as P. Schuyler Miller's "Giant Killer," Clement's "Iceworld," Russell's "Plus X," Heinlein's "—If This Goes On," van Vogt's "Slan," MacDonald's "By His Bootstraps," George O. Smith's Venus Equilateral stories, plus! but pretty soon the whole shebang begins to look like the Emmy awards T.V. show, where, if I remember, they gave awards for the best hair styling. I'm not entirely sure what my ratings indicate, aside from my own personal preferences in science fiction, unless it's that the quality of ASF has remained at a remarkably high level through the years from the 1930s to (practically) the 1960s. I am interested in other readers' ratings, now that we all have more than twenty years' quality to select from.

Now to be more up-to-date. I thoroughly enjoyed David Gordon's "Despoilers of the Golden Empire," and was pleased to see that *Fantasy and Science-Fiction* has no monopoly on satire. Your entire March issue was quite good. Now for the August AnLab ratings:

(1) "Dead Giveaway," Randall Garrett. He can really write. A good idea handled in a suspenseful, professional manner.

(2) "The Aliens," Murray Leinster. I was worried about the trite title, but it fits. Glad to see him again.

(3) "Familiar Pattern," George Whitley. Good writing. A somewhat obvious idea which didn't quite blossom.

(4) "A Matter of Proportion," Anne Walker. Well-handled, but a bit too intense for my taste.

(5) "The Outsiders," A. Bertram Chandler. Not bad, but he's done better.

(6) "Day of Succession," Theodore L. Thomas. An elderly idea badly handled. I might have forgiven his dull first few paragraphs if the story had been meaningful. Please!

May I make a mild complaint which has its origins in the orgy of reading I've been doing since I became the possessor of all those old ASFs? In my opinion, the Brass Tacks department has deteriorated. While subjects such as Hieronymus machines, Finagle's Laws, and divining rods are undoubtedly interesting, nonetheless the letters on these subjects often *aren't*. Twenty years ago Brass Tacks was chock full of

lively comment about the stories; nowadays it appears to be equally full of not-so-lively comment about your editorials. While I enjoy your editorials as much as the next fan, I still feel that a little more voluble criticism and praise of the stories would stimulate your writers to create better science fiction. I may be wrong, but a goodly lot of "classic" science fiction was being written back around 1939-1940, possibly some of it with your readers' help.

And let no one accuse me of being sentimentally nostalgic. In the year 1939 my acquaintance with the world of imaginative literature was limited to the "Little Brown Bruin" stories in *Children's Activities*. Let's have a little non-nostalgic correspondence on the stories being written today.—LTJG Sandra J. Fulton, USNR.

There is a point there! You have read all the near-thirty-years of Astounding *in one period. Few of us have!*

Dear Sir:

In reading your recent Fact article on the *New Land Color Process,* you can enroll me in the Monkey's Uncle Club, because that is one on me!!

Seriously, I have some questions I would like to ask. First, how does one deduce the color of a red table from a photograph, instead of deciding it is brown, or some other color? (Using the Land Process.)

Secondly, assuming for a moment that we reach the Planet Mars in the next twenty years, almost a certainty, and on Mars the trees are bright blue and the grass is red, what will a person looking at a Land Photograph see? Will he see brown trees and green grass *deduced,* or will he see blue trees and red grass, or what-have-you, despite any *previous experience, in botany?* Also, is this subjective?

Third, let us say that the subject involved left earth for a planet with a red sun and had a photograph taken, while he was wearing yellow clothing, and brought back the pictures to earth and you looked at these pictures. What would be the *apparent color* of his spacesuit? From your article apparently a yellow suit would be yellow under any light, using color film of the *right* type. Is that correct? I hope to read more about this subject in future issues of your magazine.—J. L. Holmes, 7418 Jefferson, Kansas City, 14, Missouri.

P.S. Where do you buy this film?

I can't say how the brain deduces the color; I'm still experimenting, and I'll have an article on the subject soon. But I can say from pragmatic experiment that human observers do *deduce colors accurately. A banana painted orange, an orange painted lavender, and a bunch of grapes very laboriously sprayed chrome yellow were correctly identified as to color by uninformed observers—in terms of "Why, the colors are all wrong! Those grapes look yellow!" A bunch of artificial violets put on a dinner plate, pro-*

jected in straight black and white, was unanimously identified as a dish of spinach—until the red projection was added, whereupon they were identified as violets.

It's subjective perception, *not mere subjective memory-identification.*

For your information: spraying grapes an even chrome-yellow is much more laborious than it's worth.

Dear Mr. Campbell:

I have here before me an article on the subject of dowsing, which appears on page 66 of the August, 1959 issue of *Science Digest,* and which gives some statistics which neatly dispose of the "myth" of dowsing. The figures are "records listing well sinkings over a long period," and are as follows:

At Fence Lake, New Mexico: Successful wells: divined 24
not divined 25
Dry holes: divined 5
not divined 7

"There was no significant difference of successes."

At New South Wales, Australia:

	100 gph or more	less than 100 gph	dry
divined	70.4%	10.1%	14.7%
not divined	83.8	5.3	7.4

The article does not state why neither set of figures adds up to one hundred per cent.

Now these figures clearly show that dowsing is a lot of nonsense, because there was no significant difference in the number of successes between those dowsed and those not dowsed.

But wait a minute. How about those which were not dowsed—how were they located? This pertinent fact is not to be found. It seems entirely probable that the others may have been located by the advice of a geologist, in which case the figures above would indicate that *there is no significant difference in successes between a psionicist and a geologist.*

If there is no significant difference in results between a highly trained geologist and a completely untrained dowser, then the psi faculties should indeed prove a richer field for research than physical science.—Bret Hooper, 246 Hubbard Road, Massena, New York.

Oh, but there is! Most dowsers work on a no-results-no-pay basis!

To the Editor:

After reading your editorial "Subjective Color," we feel it necessary, as members of the scientific profession, to make a few temporizing remarks in defense of the "misguided" scientists.

First of all, we suggest that anyone who is interested in talking about—or working with—the Land color process obtain a good book on color. One such book is "Introduction to Color," by Ralph Evans (Wiley, 1948), which is available in any good photo shop.

To one who has read the book it will become apparent that those sci-

entists who are versed in the subject of color do not support the trichromatic theory of color *vision.* It is quite true that the trichromatic method of color *specification* is accepted. However, this is a *defined* method of specifying colors, sanctioned by the American Optical Society and the International Commission on Illumination. It has nothing whatever to do with color as perceived by any human being.

Indeed, color and brightness adaptation *must* be used to explain some of the observed experimental facts about color perception. Some of these adaptation experiments have produced results just as startling to the layman as Land's work. In particular, the work of Abney (1913) and Purdy (1931), both discussed in Evans, bear on exactly the same phenomena that Land has investigated. Land's results, as presented in *Scientific American* and *Fortune,* are in general agreement with the prior experiments, which are well known to serious researchers in this field.

In this light, has Land made a "major breakthrough"? He has aroused a general interest in the subject of color, which is very commendable. On the part of the layman this interest has evidently precipitated feelings of awe. Scientifically, he has shown in a striking manner and from a different standpoint the extent to which such phenomena as adaptation can modify the so-called normal response of the eye. In view of the fact that an extensive amount of adaptation is required on the part of the observer in viewing a "Land presentation," in contrast to the essential absence of adaptation in viewing a trichromatic presentation, it seems to us that considerable research must be done on the adaptation ability of the customer's eye before the Land process will be a commercial success.—Mary F. Romig, Joseph J. Sheppard, Jr.

Land has achieved a major breakthrough in two respects; (1) while Gregor Mendel did the original genetics research work, it did no one any good, because no one paid any attention. Information that is so poorly communicated it does not have effect is, in my opinion, of no value. But how many of us can name the man who put over the idea? The basic two-color work was, indeed, done before Land—but it was so worthlessly communicated, so futilely published, that the discoveries had no consequences whatever. Land didn't use that earlier work; he discovered it only after independent rediscovery of phenomena. Just as Dr. X (you just try finding out what his name actually was!) independently discovered genetics, and only when he already knew about it and its potential value, was able to look for, and find, Mendel's completely buried paper. My feeling is that Mendel does not *deserve the credit for the discovery; he didn't make it useful. Dr. X, who did make it useful, has been robbed. And Edwin Land, who put over the dis-*

covery, in my estimation, deserves full credit. Abney, Purdy, and various others may have been competent scientists—but their work was of no value whatever to Mankind. Nothing came of it; it was sterile seed.

Incidentally, in contrast, Fulton did not *invent the steamboat; another man, an engineer, did. But Fulton was the man who had the ability to put it over, to make it useful to Mankind. Now try finding out who invented the steamboat Fulton put over!*

Land has a breakthrough, then, because he broke through the barrier of indifference to new ideas.

Second: no previous experimenters had done a real job of research on the mechanism. Tyndall, in the Nineteenth Century, knew that if red and white light fall on a screen, an object blocking the red illumination casts a green shadow. But that's not equivalent to Land's far more extensive discoveries.

Also: if Abney, Purdy, et al., had "really" gotten there first—how come the television researchers, frantic as they were to reduce the number of transmission channels, did not go to work on that system? Because nobody had effectively heard of the work.

As to "Land adaptation"; you're specifically wrong in stating that any kind of special training is needed to perceive the Land colors. It is specifically not *a "fact that an extensive amount of adaptation is required on the part of the observer in viewing 'Land presentation'..." and I have directly observed data to prove my contention. I'm not talking theory; I made the experiments, and by direct test, Land Presentation of color is immediately perceived the first time it is experienced.*

Three-color presentation does appear to be essential to reflected-light color work—e.g., our magazine covers. But it is redundant in transmitted-light color work; it is indeed "defined color." Trouble is, it's over-defined.

Dear Mr. Campbell:

Some months ago you published in Astounding Science Fiction the description of a machine for locating underground pipes. Several of my colleagues and I were at once captivated by the device, especially since a nonscientific principle was claimed for its operation *along with reproducible results.* During our spare hours we put the instrument to a number of tests, the results of which might be interesting to you and your readers.

Our primary objective was to find an immediate "cause" for the motion of the rods. We determined first of all that the handles' axes need depart about 1° from the vertical to produce an unmistakable positive response, that is to say, a 90° rotation of the rods. This movement, due to gravitational force alone, became the most likely candidate for the title, "cause." We found next that if the operator

purposely tilted the handles by 1° *while he was walking*, the rotation of his hands was entirely unobservable, except with external apparatus. This same movement, if made while he was standing still, was quite noticeable; it appeared therefore that walking and other gross movements ordinarily mask the small wrist flexure necessary for a positive response. Finally we performed a simple psychological experiment. A subject, convinced that the device could locate only buried pipes, was given a "demonstration." The operator walked over a spot below which there were no pipes, while purposely causing the machine to indicate a response. The subject was then asked to try it himself; he, too, obtained a positive indication, though he was unaware of any conscious movement that would produce it. Every subject tested was found to tilt the handles unconsciously by more than 1°, if and only if the machine "worked" for him. This held true both for the trick and for actual PSI responses.

It seems quite possible therefore that unconscious wrist movements, rather than occult forces, are responsible for the pipe locator's function. This in turn means that the phenomenon is one of simple ESP, in which perception evokes a primitive muscle response instead of the complicated movements of speech, et cetera, used in most such work. Admittedly we have not found the whole solution; in fact we now face the far more difficult question of ESP itself.

If the above conclusion is correct, we might draw another inference from the experiments. It may be that the ESP function is impeded by attempts to formulate complex responses. The simplicity of this particular response might then explain why most people can use the pipe locator, while only a few can, for example, name Zener cards successfully. We seem to have in the pipe locator a more sensitive detector of ESP than hitherto employed by parapsychologists. Workers in the field might do well to test this possibility directly.—Stephen L. Moshier, Bellevue, France.

The question with the rods always has been "How does the operator know when to tip them?" not "How does he tip them?"

Dear Mr. Campbell:

Your article about subjective color in the August, 1959, issue brought to mind something that has been puzzling me for the last two years: Do people see the same colors?

A child learns the Names of colors. How can we tell if the color he sees and calls—say yellow—would be yellow to us if we could see it with his eyes? You said we deduce most colors. Isn't it possible that some people deduce differently?—K. Russell, 121 Grace, Park Ridge, Illinois.

Friend, on that one—you'll never know until you achieve telepathy!

THE END

THE REFERENCE LIBRARY

BY P. SCHUYLER MILLER

A TREND TO INTEGRATION

SCIENCE fiction has been a segregated branch of literature for not quite thirty-four years, and we've been just as happy in our self-imposed isolation as most religious, racial or national minorities have been when they first tried to settle down in a snug little enclave in the midst of another society. Actually, the best parallel is with a religious schism, for science fiction was a part of mainstream writing long before Hugo Gernsback gave it a name and a magazine of its own.

Two generations of readers and writers have contributed to keeping strong fences around the SF ghetto,

and to tending the grounds and raising beautiful edifices inside. Nobody who has ever gone to one of the major science-fiction conventions, such as the very successful one which Detroit held last Labor Day—or, we hope, the equally successful one which Pittsburgh will have next Labor Day—can come away with any doubt that we are a closely knit and clannish family. Writers, editors, artists, fans, fan-editors—even the "fake fans" who never read the stuff—have a strong commonality of interests, stereotypes, gossip, and even jargon. Fanzines, talks, panels, the "pro" play—all are crammed with private jokes and allusions that make very little sense to the outsider.

All these things are classical characteristics of most segregated groups. They develop because they help strengthen the insiders' feeling of belonging together, back-to-back against the different world. But after a while they become the stereotypes which the outsiders use to identify us, and at this stage we are no longer segregating ourselves, for our own comfort, identity and glory—we're being segregated against. That's when we in the ghetto start to feel the economic and social isolation that cuts us off from the "real" world with its even widerspread opportunities and rewards. And that—from the trend of the talk at the Detention—may be what's happening to science fiction now.

Marion Zimmer Bradley has spelled out the situation as it applies to the movies, in an article in last July's issue of *Yandro,* the very good fanzine published by Robert and Juanita Coulson of Wabash, Indiana. "Why can't they make good science-fiction movies?" she asks—and answers: "Because of the label 'science fiction.' To the movie-going audience, the very word science fiction has bcome associated with mad scientists, monsters and grotesque make-up and mock-ups." Her conclusion is: "if good science fiction movies are ever going to be made, *they cannot be made as science-fiction movies.*"

The same may be true of science-fiction novels. I am by no means ready to concede the end of science-fiction magazines, but the discrimination of the general reading public is making itself felt. Magazines are giving up; circulations have been dropping; distributors don't bother to put new issues into circulation with any kind of consistency. The best writers find that they can earn more in other fields, and do. The new writers tend to belabor familiar, clannish themes that have special meanings inside our walls but not much outside. We are growing bored with writing for our own applause and edification, but with some exceptions we haven't been doing much to communicate with the folks outside.

There's one saving grace in this gloomy situation, and it's come from outside. It looks as if we're being integrated.

Three good recent novels from major publishers, by non-SF writers, nevertheless are technically science fiction. The technicality may have to

be stretched a little, but I'm using Robert Heinlein's criterion, developed in his portion of Advent's "The Science Fiction Novel," that all fiction laid in the future must be science fiction. I could add a fourth book, Agnew H. Bahnson's "The Stars Are Too High," but that is almost too obviously pure SF in plot, details, and the concluding gimmick.

Exhibit One is "The Manchurian Candidate," by Richard Condon (McGraw-Hill Book Co., New York and Toronto; 311 pp.; $4.50). This is a fertile hybrid between the suspense thriller and science fiction, with enough characterization to place it beside mainline novels in literary approach as well as price. Its hero is also in a sense its villain—one of an American patrol in Korea who has been captured and brain-washed by a Red Chinese genius, for a purpose which the book keeps secret and which I therefore can't very well spell out here. Along the way, though, it is made quite clear that Sergeant Raymond Shaw has been turned into a Communist time-bomb who kills at the will of a mysterious operator somewhere in high circles.

Two of the other men in Raymond's patrol break through Dr. Yen Lo's post-hypnotic barriers, and one of them, a captain in Intelligence, sets out to discover what is going on, who is triggering Raymond's assassinations, and how he can be de-fused before the final big blowup. This is a familiar plot, well handled, but the author has made his characters real. Raymond is the deadly weapon in our midst, but he is also the man whose horrible dilemma we want to see resolved. In his stepfather, Senator Johnny Iselin, we have a cynically devastating portrait of a demagogue to whom only his own power is important. In Raymond's mother we have another single-purposed man-eater who destroyed her first husband, Raymond's father, so that she would have a free hand with the career of Johnny Iselin. At just one point is she out of character—and that one lapse turns out to be a vital clue to the direction the plot will take.

Richard Condon is a very skillful novelist, using a science-fiction theme without labeling it.

The horrors of the next, all-out nuclear war are another old SF theme. Some writers have handled it realistically; others have made it a vehicle for stock melodrama. In 1957 a German novelist, Hans Hellmut Kirst, used it for a novel which I'm told was a best-seller in Europe. Doubleday brought the book out here as "The Seventh Day" (424 pp.; $4.95), and it has also had its share of acclaim from American critics.

This is a despairing book, full of the fatalism of a Germany that sees itself as the place where the cleavage between East and West will inevitably take place. Then—to quote the last four lines of the book—"Germany no longer existed. So ended the sixth day. Europe did not survive the seventh. The hours of mankind were numbered."

Kirst is saying that nothing we can

do now will deflect this end. He shows us a panorama of future Europe —a mosaic of individual lives, all of them playing a part in the avalanche of human inertia and obtuseness. To Wolf Beck, financier, what is happening is unimportant and unreal: his life is ruled by the slogan, "business as usual." Constance Schubert, the wife he is divorcing, is equally unconcerned: it is "nothing to do with me." The scientist, Henry Engel, sees what is coming but is strangely fatalistic: his code is "a plague on both your houses." And the military leaders of both East and West have one common ground: they act strictly "by the book."

These are the people who, because of their positions and backgrounds, should be able to see what is happening to their world but choose to ignore it. Kirst also shows us the little people who are controlled by events, but who in odd ways also do their bit to control: an East German dollmaker and his West German fiancée, whose mother sees a more promising future for her as her boss' mistress . . . teenage lovers with an amazing strength of their own, though not quite enough in the end . . . individual soldiers on both sides.

The one man who is doing his utmost to stop the juggernaut, by appealing to reason and to both sides, is also helpless. The destruction that is coming, Hans Kirst says, is in ourselves: we can stop it, but we won't. The moment is more important than the future. The German title of his book said it very simply: *"Keiner Kommt Davon"* . . . "Nothing Comes of It."

The third of these novels of the future is at the top of the New York *Times* best-seller list, and has been on the list for eight weeks as I write. In a way, it is an answer to Kirst's despair, because its theme is the strength in individual men and in their institutions.

When the events of Allen Drury's "Advise and Consent" (Doubleday; 616 pp.; $5.75) take place is one of the things the author has concealed very cleverly. The population of the United States has grown to one hundred eighty million but there are still only fifty states. A manned Russian rocket is on the way to the Moon, and an American moon rocket is on the launching pad. Two or three presidents have followed Eisenhower, and the current president is a former Governor of California, whose party is quite unidentifiable. The one hundred members of the United States Senate —and the author characterizes them all—are carefully fashioned composites, so that there is never any real feeling that the book is about our own time.

The hero of "Advise and Consent" is the Senate itself; the villain is the President of the United States, who will stop at nothing to have his nomination of one Robert Leffingwell as Secretary of State confirmed. Allen Drury has been a Washington correspondent for fifteen years, and the commentators have agreed that his cruel portrait of politics from the in-

side is faithful and realistic. Personal prejudices and spite . . . revenge . . . political pressures . . . old loyalties . . . the opportunism of a demagogue and the cynicism of the men who use him . . . ambition and despair . . . and in its way, patriotism are the forces that guide the attack on and defense of Bob Leffingwell.

It is a clear proof of the stereotypes and prejudices which the outside world has saddled on science-fiction—after we did everything but tighten the cinches ourselves—that if this novel had been written about the members of a Galactic Parliament, nobody would have published it and nobody would have read it. It would be "science fiction," and consequently of no consequence. Yet this is a book about the future, and the picture of the Senate and how it operates is as painstakingly drawn as any of Robert Heinlein's imaginary societies. The few central characters are never cardboard stand-ins, but they represent the kinds of men whom we send to Washington, and who work there under pressures like these.

This is very close to the ultimate in integration of science-fiction themes and treatment with the main stream of literature. In the days before Gernsback and *Amazing Stories,* all writers felt free to use these themes, whether for simple entertainment in Edgar Rice Burroughs' or A. Merritt's books, for social criticism as in some of H. G. Wells', or to play with scientific ideas as in "John Taine's." If writers are regaining this freedom, and tearing down the walls of isolation that they helped us build around ourselves, I think it's a good sign.

* * *

For the record, it's also a good sign that the book which earned the "Hugo" as the best SF novel of 1958 was James Blish's "A Case of Conscience." Here is a book written inside the walls, that deserves to be read outside.

Best novelette was Clifford Simak's "The Big Front Yard," published here in Astounding in October, 1958. Best short story, Robert Bloch's "The Hell-Bound Train." Frank Kelly Freas took home his fifth Hugo as best artist —primarily, I'd say, for his work right here in these pages. *Fantasy and Science Fiction* took its second "best magazine" award, which looks from here like a sign of growing acceptance of fantasy. No new writer got a clear majority of votes, but Brian Aldiss, the English writer of whom we haven't yet seen much in the United States, was far enough ahead to merit a special plaque. *Fanac,* published by and for fandom pure and simple, was voted best fanzine.

After considerable soul-searching and consultation with the Detroiters and others who have been involved in the conventions, the Pittsburgh committee is making some minor changes in the 1960 awards. We like Detroit's logical plan of keeping to the calendar year, so that eligible stories must have been published during 1959, or in magazines carrying a 1959 date.

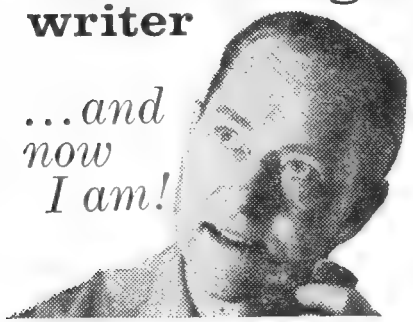
There will be six Hugos: for best

novel—hardbound, paperback, serial or "one-shot"—published in 1959; for best shorter fiction—since there seems to be utter confusion between the old novelette and short story categories; best magazine; best artist; best fanzine; and another revised category for dramatic works, that can cover movies, television plays, and stage plays produced or released in 1959. Right now, we're asking all of you to nominate candidates in any and all of these categories. We want them all in by May 1, 1960, so that they can be boiled down and a ballot sent out for the final vote, early in June.

You may send your nominations to me at 4805 Centre Avenue, Pittsburgh 13, Pennsylvania, or to the Chairman of the Pittcon Committee, Dirce Archer, 1453 Barnsdale Street, Pittsburgh 17, Pennsylvania. As this is written, a few weeks after the Detention, we have one hundred twenty-five advance registrations, with more coming along every day. The $2 registration fee—$1 for overseas members—will bring you three progress report booklets, probably in January, June and mid-August, plus the souvenir program booklet at the Convention, next Labor Day weekend, with James Blish as Guest of Honor, Isaac Asimov as Toastmaster, and a long series of events and personalities.

Your registrations pay for the Hugos you award with your votes. Checks can be made out to the 18th World Science Fiction Convention Committee, or to me as Treasurer, and sent to Dirce Archer at the address I've given you. Membership

I dreamed about being a writer



It was my big ambition. Then I saw a Palmer ad which told how others were making money—even in spare time. So I sent for their book which explains how they train for *all* fields of writing. I enrolled, and was delighted with the detailed, professional instruction. Now I am a writer, and I'm loving it!

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cards are already being printed, and the first Progress Report will be in the mail shortly after you read this.

TIME OUT OF JOINT, by Philip K. Dick. J. B. Lippincott Co., Philadelphia. 1959. 221 pp. $3.50

I shouldn't have to tell any "faithful reader" of today's science fiction that Philip K. Dick is developing into one of the most original talents in our field. He may not be in it long: this first hard-cover book is jacketed as "a novel of menace"—which it is. It also happens to be good, hard-shell science fiction, handled with consummate skill, so that an unsuspecting mystery reader may just find himself trapped before he realizes he's reading "that stuff."

You are introduced to Ragle Gumm, living with his sister and brother-in-law in a smallish town, and living off his winnings in an interminable newspaper contest, in which he is the invariable winner. This odd pattern of life grows a little odder; the reader begins to spot small contradictions and discrepancies that the characters seem to miss; and finally Ragle develops the growing conviction that he is somehow the center and *raison d'être* of a colossal piece of play-acting—as though the entire cast of De Mille's "Ten Commandments" had been rehearsed to convince one insignificant extra that he *is* an Egyptian laborer.

Now Ragle Gumm tries to break out of his barless cage, only to be deftly turned back again and again. Of course, he does get out, and he does find out what is happening, but not until the beginning of the last chapter, when he sits down to read his own biography in *Time*.

It's a grand job of writing.

THE MARCHING MORONS, by C. M. Kornbluth. Ballantine Books, New York. No. 303K. 158 pp. 35¢

It is more than ever unfortunate that Ballantine has quit publishing hardback editions of its science fiction, because this posthumous collection by one of our most talented SF writers deserves permanence. Of course, most of the nine stories are safely in anthologies, but they belong together as a prime sample of how science fiction can probe and tease at the innards of our society, and reveal the benign and malignant growths that we like to pretend aren't there.

Nor are these heavy-handed treatises like some of the satires that got Stanton A. Coblentz a reputation in the '30s. Kornbluth did his lancing and hewing in real stories—good stories—lovingly constructed and prime examples to his followers. Take the title story, which shows us a far future in which the Gresham's law of ungoverned breeding has reduced the mental level of most of the world's population to a ruthless moronity, with an overworked, still-intelligent elite struggling to keep the wheels

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of society turning. It takes another moron—a sleeper from the past—to find a solution, and a ruthless one.

Or "The Luckiest Man in Denv," which shows us a society of incessant intercity wars, Denv against Ellay, and the brutal opportunism that the situation breeds. Or "The Cosmic Charge Account," a mocking satire on such pseudo-philosophical movements as General Semantics or Dianetics or Scientology—this time it's Functional Epistemology, and it works altogether too well. Or "The Only Thing We Learn," which reduces cyclic theories of history to one maxim that mankind never seems to learn.

Kornbluth was capable of smooth entertainment, too, and we have it here to round out the collection. In "Dominoes" a stock broker, riding the market toward a certain crash, uses a time machine to find out when to get out. In "The Silly Season" we have the mechanism of a newspaper wire service and its small-town correspondents deftly used to illustrate a flawlessly planned invasion of Earth—and to show us how vulnerable we are. In "I Never Ask No Favors," a juvenile delinquent comes

up hard and horror-stricken against rural witchcraft as practiced in the Southern Tier country along the New York-Pennsylvania border, where Kornbluth sets several of the stories, including his memorable novel, "Not This August." Here, in the events described in "MS. Found in a Chinese Fortune Cookie," the author's fellow writer, Cecil Corwin, discovers "The Answer" and is promptly visited by an ominous pair who strongly resemble two of our most successful contemporary writers.

The last story, "The Remorseful," is a let-down rather than a fit epilogue. It's a rather tired variant on the Visitors to a Decimated Earth story, with nice detail and a little novelty but not much else. It was probably just the right length . . .

REPRISES

SANDS OF MARS, by Arthur C. Clarke. Perma Books, New York. No. M-4149. 1959. 217 pp. 35¢

A new paperback reprint of one of Clarke's best realistic novels. The previous pocket book edition was out in 1954. Same book; same publisher, really; but a new cover and a new series.

LORD OF THE FLIES, by William Golding. Capricorn Books, New York. CAP-14. 1959. 256 pp. $1.25

As the price will show you, even the paperback reprints are being "integrated." This novel of the nightmare society constructed by a planeload of boys, dropped on a tropical island to protect them from the threat of a nuclear war, is reprinted as memorable literature—which it certainly is. The publisher has added a fascinating note on the author, his other work, and his symbolism and purpose: "to trace the defects in human society back to the defects in human nature." If you missed this in the original edition, it's an experience not to be forgotten.

A STIR OF ECHOES, by Richard Matheson. Crest Books, New York. No. s-308. 1959. 175 pp. 35¢

Matheson's fine novel of a man hag-ridden by his accidentally released telepathic and precognitive powers. I still think he pushed his luck a little too far by adding the "ghost" element, which was unnecessary in an effectively underplayed and realistic book.

THE TRANSCENDENT MAN, by Jerry Sohl. Bantam Books, New York. No. A-1971. 1959. 154 pp. 35¢

Least of this month's reprints, and a book that didn't impress me the first time 'round. Now the publisher is ready to throw away the "hidden" theme: the Capellans are among us, running the world.

(*Continued from page 9.*)
tion: Under the scientific method, is there any defensible reason for demanding that the responsible individual be determined?

Yes, of course, there is . . . *after you have acknowledged that psi is valid, worthy reality.* But until then —the first step is simply the determination whether *psi* exists — not whether John Q. Terwilliger is or is not psi-talented.

And it is absolutely not true that psi-talented individuals must be detected before psi-as-a-reality can be determined. It is *not* necessary to locate a radio transmitter in order to determine whether or not radio broadcasting is possible.

Imagine this situation: Suppose that a high civilization grows up on a planet, develops high technology, and knocks itself flat with its high technology. In the last stages of its last war, hundreds of orbiting satellites with homing mechanisms are sent up; they're designed to locate, home in on, and destroy any source of radio-frequency transmission.

The civilization is smashed, but the hundreds of orbital missiles remain orbiting. A thousand years later, the culture rises again, and their new Marconi starts transmitting signals.

But not for long!

Every individual transmitter that tries to get the radio business started again gets smashed immediately.

But . . . if three stations start transmitting simultaneously on the same frequency, because the homing missiles head for the center-of-resultants, the missiles do not demolish the transmitters, but expend their energies on a point somewhere between the three.

On such a planet, under such circumstances, radio could be redeveloped *only* if things were carefully arranged in such a fashion that "You can't say I did it!"

It looks very much as though we have, today, a powerful hangover from an earlier culture, still orbiting around the planet, and automatically smashing any individual source of output. If psi is superstition—then so is the feeling that drives men to fear and suppress it.

If we want to investigate psi-itself in a genuine, honest manner—we

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don't need to *locate* psi-talented individuals. We need, instead, to devise means whereby psi-talented individuals can be *protected against being located* while they produce psi effects for our study.

If you notice, however, Rhine's work, which has produced individual-protecting statistical evidence that is, actually, , overwhelmingly powerful evidence for the existence of psi, is powerfully rejected. The rejecting anti-psi people keep demanding "Show us someone who can really do this under laboratory conditions!"

That is, "We won't accept evidence that psi exists—we want to find an individual who has psi talents."

Every time such an individual has shown up, he has been massively attacked. Only improbably—and self-destructively—stubborn, or abnormally moronic individuals are going to answer to that call. The morons can be disposed of because they're unintelligent, and easily defeated thereby. The improbably stubborn are, of course, obvious fanatics . . . and everybody knows fanatics are crackpots not worthy of belief.

Recently, radar researchers succeeded in bouncing radar signals off the planet Venus, and getting enough reflected energy to be detected. The signals were practically drowned in noise, despite the use of the most advanced zero-noise-level master amplifiers. The fact that the signals were, in fact, picked up was shown by having an electronic computer run a correlation study of the recorded noise-cum-signal. The correlation was such that it was shown that probabilities ran 10,000,000 to 1 that the signal was, in actuality, a true reflected signal bounced off of Venus.

Odd, isn't it, that a mere 10,000,000 to 1 against random-noise effect producing the observed phenomenon is considered complete and adequate proof in radar work. Why, Dr. Rhine wouldn't even bother to work up probabilities that low! His signal-to-noise probability must run at least ten billion to one before he considers it worth working with.

Now let's consider the question honestly: Is Science—or "Are scientists" if you prefer that form—willing to consider psi-itself, without insisting on locating a specific source?

The answer, I believe, can be read in the record.

Odds of 10,000,000 to 1 *prove* a radar signal was bounced off of Venus.

Odds of 10,000,000,000 to 1 don't prove anything, have no significance whatever, when they relate to psi.

The trouble with Science (or Scientists) is that there is a most violent emotional objection to being forced to abide by its own standards and criteria—when the answer is one that is wanted-not.

Hm-m-m . . . "I don't believe there is any such thing as Venus! This 'proof' that signals were reflected back is no proof at all! It's mere probability! If you want me to believe it, bring that Venus of yours into the laboratory, where I can make a proper, scientific study of it.

THE EDITOR.

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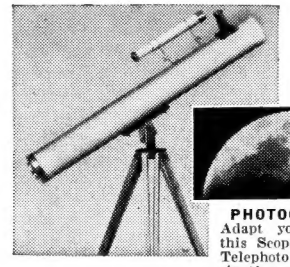

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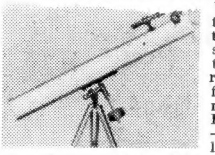

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